



Columbia University
in the City of New York

LIBRARY



THE SELIGMAN LIBRARY OF ECONOMICS

PURCHASED BY THE UNIVERSITY

1929

AK
1888

THE
BARRIER
SILVER AND TIN FIELDS

IN
1888,

WITH A MAP.

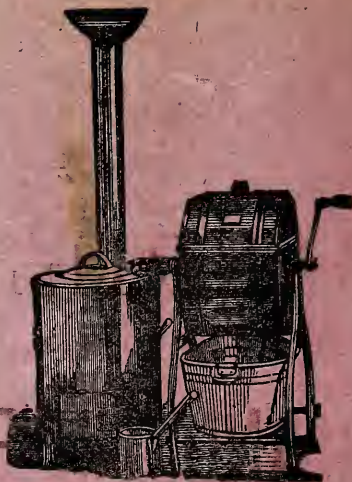
PRICE-ONE SHILLING.

ADELAIDE:
W. K. THOMAS & Co., PRINTERS, GRENFELL STREET.

1888.

SIMPSON'S

STEAM
WASHING
MACHINE.



STEAM
WASHING
MACHINE.

HARDLEY'S PATENT.

THIS Machine was invented but a few months since in New Zealand, where it has met with an extraordinary demand. We believe it is the Best Washing Machine yet introduced. The labour required is nominal, a child nine years old can work it with ease, and the speed with which it washes is marvellous. The clothes to be washed by this Machine do not require boiling or soaking over-night, the only preparation necessary being to let them remain in water while the fire is being lit and the water boiled in the boiler. As there is no rubbing in the process of washing by this Machine, clothes washed by it will last longer than those washed in the ordinary way.

To MR. S. HARDLEY.

Dear Sir.—We have had your Washing Machine, and have given it a trial, and find that it gives very great satisfaction.

Yours faithfully,

(Signed) E. A. GLANVILLE.

Wright Street, Adelaide, October 5, 1887.

MR. S. HARDLEY.

Dear Sir.—The Hardley's Patent Washing Machine I purchased from you on your recommendation, has given complete satisfaction. Mrs. Wright desires me to say that having given the machine a fair trial, she believes that it is all you have represented it to be. The saving of time, labour, and fuel effected, and the satisfactory manner in which the work is done, should gain for your patent an extensive sale.

Yours faithfully,

(Signed) W. WRIGHT.

North Parade, North Unley. October 11, 1887.

MESSRS. A. SIMPSON & SON.

I write these few lines to you to let you know that I am well pleased with your Hardley Washing Machine, and that I have done a day's washing in half a day for a fortnight's wash. I have done two day's washing with it, and am well pleased with its work.

I remain, yours truly,

(Signed) A. HITCH.

Pinda, November 14, 1887.

To MESSRS. A. SIMPSON & SON:

Sirs.—The Hardley's Patent Washing Machine that I purchased from you I have given a fair trial, and am quite satisfied that it washes the clothes well, and is a great saving of labour, time, and fuel, and I have every confidence in recommending it to the public.

Yours faithfully,

(Signed) HARRIET HOLBROOK.

Willford Vineyard, Underdale, November 22, 1887.

MESSRS. A. SIMPSON & SON, Gawler Place.

Dear Sir.—I have great pleasure in informing you that the Hardley's Patent Steam Washing Machine has met with my entire satisfaction. After giving it a fair trial I am convinced that it is the most perfect machine in the market. It is so simple that a child can work it easily, and get through a family's washing in less than half the usual time, and although it works with great rapidity, it does not tear the clothes. The saving in time, labour, and fuel, will pay for the machine in a few weeks.

You are at liberty to make any use you like of this.

I am, dear Sirs,

Yours faithfully,

ALFRED ALBERT BAILEY.

Auckland Street, Adelaide, November 23, 1887.

A. SIMPSON & SON, Makers, Gawler Place, Adelaide.

The South Australian Register.

The largest and best Daily Newspaper in the Colony. Price, Twopence, or 35s. per Annum in advance. Postage, 10s. extra.

Persons desirous of becoming Subscribers to the above paper and securing its regular despatch to any address should forward with their remittance the annexed order with full address.

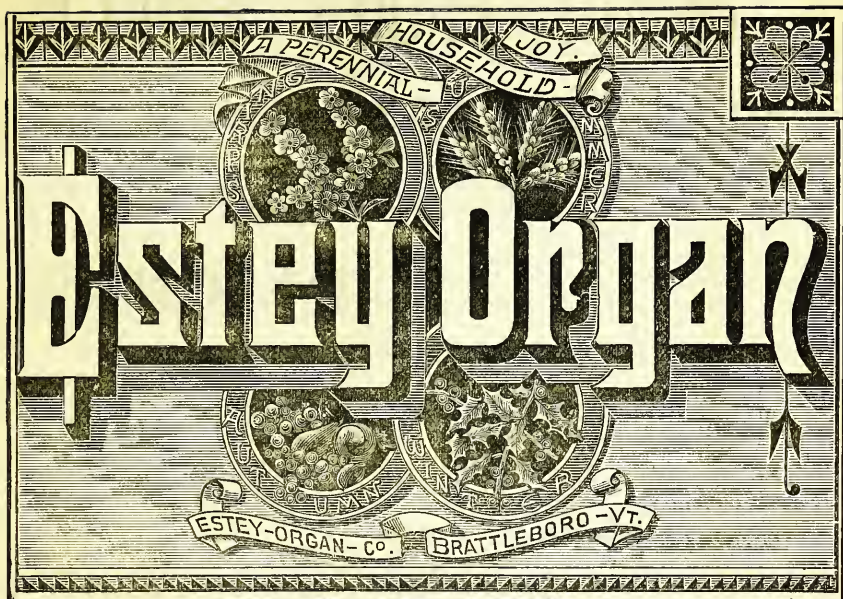
To MESSRS. W. K. THOMAS & CO.,

Proprietors "South Australian Register,"

Grenfell Street, Adelaide.

Herewith please receive £1 15s. being one year's Subscription, in advance, to the "South Australian Register," which please forward until further notice to*

** If to be posted direct, add 10s. for postage.*



MOST EXTENSIVE REED ORGAN WORKS ON THE GLOBE.

Twelve Large Factories; Six Hundred Employees; Production, 1,500
Organs per month.

ADDRESS FOR TERMS, &c.,

A. KAUFFMANN & SON,

GRENFELL STREET, ADELAIDE.

SOLE AGENTS, WHOLESALE AND RETAIL.

PIANO DEPOT

For High-class Pianos from all the leading GERMAN AND ENGLISH
MAKERS.

PIANOS SUITABLE FOR COTTAGE!

PIANOS SUITABLE FOR MANSION!

PIANOS SUITABLE FOR CONCERT HALL!

All built to stand the most severe climate.

PRICES AND TERMS ON APPLICATION.

NOTE OUR ADDRESS—

A. KAUFFMANN & SON,

65, Grenfell St., Adelaide.

FRUIT ! FRUIT ! FRUIT !
VEGETABLES !
POTATOES !
ONIONS !

Packed fresh and good all the Season round at

WHOLESALE PRICES

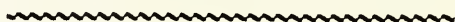
Also,

Groceries

Provisions

Produce

Either for Local or Export (under bond) Trade, at lowest
market prices.



CHARLICK BROS.,
East-End Market, Adelaide
AND
PORT ADELAIDE.

Price List and Terms forwarded by letter or wire on
application.

G. N. & W. H. BIRKS

Family and Dispensing Chemists,
HOMOEOPATHIC PHARMACY
59, Rundle Street (Corner of Gawler Place), Adelaide.

G. N. & W. H. BIRKS

IMPORTERS OF
FANCY GOODS OF EVERY DESCRIPTION

A Choice and Varied Stock to select from of Articles Useful and Ornamental, suitable for presentation on Weddings, Birthdays, or any other occasion.

68, RUNDLE STREET, ADELAIDE.

BY
APPOINTMENT.



BY
APPOINTMENT.

MESSRS. G. P. DOOLETTE & CO.

Desire to call the attention of their numerous Customers and the Public generally to the

SPLENDID SHOW OF SEASON'S GOODS

which they are now exhibiting, and which are being added to day by day by steamer arrivals from the ENGLISH and CONTINENTAL MARKETS. The Show comprises the Newest and most Stylish Woollens for

SUIT & TROUSERS, DRESS AND MORNING SUITS, & OVERCOATS.

The Newest and most Fashionable Styles and Shapes in Gentlemen's
DRESS AND UNDRRESS HATS.

A really Magnificent Stock of Scarfs of Choice Designs and all the Leading Shapes. New makes in Hosiery and Underclothing, and every requisite for the Gentleman's Wardrobe and Toilet. Patterns of Woollens and Shirtings can be had post free on application.

GEO. P. DOOLETTE & CO.,
50, KING WILLIAM STREET, ADELAIDE.

By Appointment to their Excellencies

SIR JAMES FERCUSSON, BART.
SIR ANTHONY MUSGRAVE, K.C.M.G.



SIR W. F. D. JERVOIS, G.C.M.G., G.B., R.E.
SIR W. C. F. ROBINSON, G.C.M.G.

A. L. BRUNKHORST

(Late H. STEINER).



**WATCHMAKER,
JEWELLER,
GOLD & SILVERSMITH,
106,
RUNDLE ST.
(Opposite the Arcade),
ADELAIDE.**

LADIES' AND GENT'S GOLD AND SILVER WATCHES,
With Latest Improvements, and of Best Quality.

GOLD CHRONOGRAPH, REPEATING, AND PRESENTATION WATCHES.
Guarantee given with every Watch Sold.

GOLD, SILVER, AND HIGH-CLASS DIAMOND JEWELLERY
Of Latest Design and in Endless Variety.
Novelties in

GOLD LACE BROOCHES, BANGLES, LADIES' ALBERTS AND FOB CHAINS,
DIAMOND, SINGLE STONE, HALF-HOOP, AND GIPSY RINGS
Of our own manufacture, and at all prices.

CHOICE SELECTION OF ENGAGEMENT AND DRESS RINGS.

STERLING SILVER GOODS.


Racing Trophies, Cups, Tankards, Mugs, Salvers, Tea and Coffee Sets, Afternoon Tea Sets, Spoons,
Forks, Apostle Tea Spoons. Any design made to order.

SILVER ELECTROPLATED WARE.

The Largest and Choicest Selection in South Australia.

Marble and Drawing-room Clocks, Spectacles, Opera, Field,
and Marine Glasses.

ALL GOODS MARKED IN PLAIN FIGURES.

 Note the Address—

**106, RUNDLE STREET,
ADELAIDE.**

ASK FOR
SONTAG FRENCH KID

AND DO NOT BE PERSUADED TO TAKE ANY OTHER.

IF YOU WANT THE LUXURY
OF A
TRUE-FITTING SHIRT
ASK YOUR DRAPER AND CLOTHIER FOR
THE CRITERION

NONE ARE

GENUINE

UNLESS BEARING



THE ORIGINAL

REGISTERED

TRADE MARK.

BEWARE OF SPURIOUS IMITATIONS.

USE THE ABC PIPE

WHICH IS NOW THE
Most Favoured Brand in the Market.

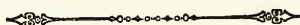
ASK FOR
THE NUGGET BRAND
MOLESKIN TROUSERS

WHICH IS NOW THE
LEADING LINE FOR VALUE.

THE AËRATED BREAD COMPANY,

WAYMOUTH ST., ADELAIDE,

Steam Biscuit Manufacturers.



These magnificent Biscuits are kept in Stock by all respectable Grocers and Storekeepers throughout the Colony.

TELEPHONE 232.



GOLD MEDAL, LONDON EXHIBITION, 1873.

UNE MENTION HONORABLE, PARIS, 1878.

FIRST PRIZES, SOUTH AUSTRALIA, 1876, 1878, 1881, and 1885.

PRIZE GOLD MEDAL, ADELAIDE INTERNATIONAL EXHIBITION, 1881.

SILVER MEDAL, CALCUTTA, 1884.

FIRST PRIZE, S. A. CHAMBER OF MANUFACTURES, 1884.

HIGHEST HONOURS AT JUBILEE EXHIBITION, 1887.



LARGE ORDERS FOR PILOT BREAD

Can be carried out with dispatch, as we have
Machinery for turning out

FOUR TONS A DAY.

W. KITHER,

Wholesale and Retail Butcher,

HAM AND BACON CURER,

135, Rundle St., Adelaide.

W. K. respectfully calls the attention of Consumers to the following Goods manufactured by him :—

BRAWN

POLONY

FRITZ—Kither's Celebrated

BLACK AND WHITE PUDDING

SAVELOYS

ROUNDS BEEF

SPICED BEEF

SMOKED OX TONGUES

SMOKED SHEEP'S TONGUES

PURE BEEF DRIPPING, in kegs
from 50 lbs. upwards

PURE LARD, in bladders, a large
stock

CORNEO BEEF.

In Tierce, Barrels, Kegs, or Bags.

PICKLED PORK.

In Barrels, Kegs, or Bags.

Comment on the above is needless, as W. Kither's manufactures have borne the name for many years of being second to none.

HAMS AND BACON.

HAMS, in seeds or calico, pale or smoked.

BACON, Sides, smoked or pale.

Do. Flitches, smoked or pale.

MUTTON HAMS.

In calling the attention of consumers to my Hams and Bacon I have only to mention that at the September (1887) Show of the Royal Agricultural Society the Hams and Bacon shown by me secured the only Two Bronze Medals offered, and several other First Prizes, which should be a sufficient guarantee of the quality of the above goods.

**ALL GOODS CAREFULLY PACKED AND FORWARDED
TO ALL PARTS OF THE COLONIES.**

TELEPHONE NO. 225.

THE **PLAN** ADOPTED
BY
THE VICTORIAN
FURNISHING COMPANY

Is to mark every article of

FURNITURE

China, Glassware,

And all

HOUSEHOLD REQUISITES,

At the

Lowest Nett Cash Price,

In

PLAIN FIGURES.

The Victorian Furnishing Company

63, HINDLEY STREET,

Opposite the Coffee Palace, and midway between the
Black Bull and Victoria Hotels.

THE
BARRIER SILVER AND TIN FIELDS

IN
1888.

BEING
A SERIES OF LETTERS
WRITTEN BY
A SPECIAL CORRESPONDENT
OF
'THE SOUTH AUSTRALIAN REGISTER,' 'ADELAIDE OBSERVER,'
AND 'EVENING JOURNAL,'
AND RE-PRINTED FROM THOSE PAPERS.

ADELAIDE;
W. K. THOMAS & Co., PRINTERS, GRENFELL STREET.

1888.

Seligman
1888 Aug
3276

P R E F A C E .

IN response to requests from many quarters, the proprietors of the *South Australian Register*, *Adelaide Observer*, and *Evening Journal* decided to re-print the letters from their Special Correspondent on the Barrier mines in pamphlet form; and, in order to increase the usefulness of the information to the public, to add a copious index and a sketch plan. The letters, which appeared in the *S. A. Register* and the *Evening Journal* from day to day and were re-printed in the *Observer*, the first being published on January 27 last, were written in the hope, as it is stated at the outset, that a simple statement of facts to be found in the marvellous mining district would not only interest the general reader but assist the pioneers in the work of development which is of so much importance to the common weal.

South Australian interests are deeply connected with the progress of the Barrier fields, and perhaps equally so in an indirect way. Who can say that the special experience in silver and tin mining obtained there will not lead to a revelation of now unknown mineral resources in our midst that shall be of more substantial and enduring service to the Colony than even the valued and valuable Barrier trade present and prospective?

In the lengthy list of claims given an idea will be obtained of the extent of the district, and the degree of developement. If Barrier mining is only now in its infancy, what will it be in the pride of its strength!

Adelaide, March, 1888.

The South Australian Register

(ESTABLISHED 1836),

An eight-page Daily Paper, with frequent Supplements containing the latest news from all parts of the world by wire and post. Price 2d., or 35s. per annum in advance ; posted, £2 5s.

The Adelaide Observer

Is the largest Weekly Newspaper published in the colony. It consists of 48 pages. The *Observer* is arranged in several distinct departments. The "Miscellany" contains reviews of the latest books, essays on popular subjects, notes on science, incidents of travel, interesting sketches, articles on exploration, chess problems, riddles and puzzles, poetry and witticisms, a column for ladies containing the latest fashions, a department for children filled with tales and poetry for the young, and novels by the best authors. No expense is spared by the Proprietors in obtaining the right to publish stories by the best English writers. Tales by local writers of ability are also constantly published. The Farm and Garden Department contains a vast amount of well-edited information for the benefit of farmers, sheep and cattle owners, gardeners, and others interested in the tillage of the soil and the growth of stock. The Sporting columns (which are under the control of a Special Editor) contain full details of all racing matters, cricket, football, aquatics, rifle shooting, &c., in the Australian colonies and the old country.

The *Observer* also contains full British, Foreign, Intercolonial shipping, commercial, and general news, original articles on political and social subjects, dramatic and musical criticisms, &c. The columns devoted to "Echoes and Re-echoes" contain humorous comments on current events in poetry and prose.

An early edition of the *Observer* is printed on Friday morning for the country mails. Price Sixpence, Six Shillings per quarter in advance, or £1 2s. per annum in advance (including postage).

The Evening Journal,

Published every afternoon, contains the principal news of the day. Price, One Penny.

The South Australian Register Summary

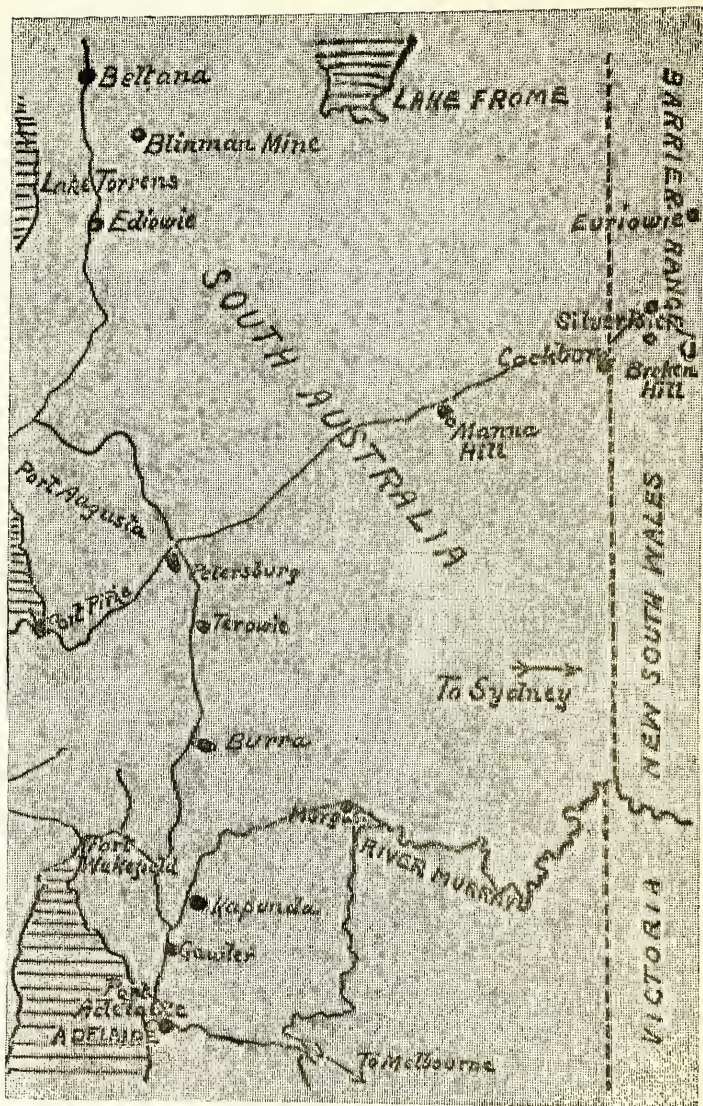
Is published fortnightly for despatch by the English mail. Price Twopence, or (including English postage) 6s. 6d. per annum.

I N D E X.

	PAGE.		PAGE.
A.		C.	
Adelaide	82	Caloola	70, 80
Alberta	50	Caloola King	81
Albion	72, 86	Caloola North	81
Albion West	86	Caloola South	81
Albion North	86	Cambrian '	56
Albion South	86	Campbell's Creek	60
Amalgamated Rockwell	47	Carn Brea	80
Anaconda	48, 59	Central (B. H.)	16, 27, 32, 39
Annexation	66	Champion Lode	55
Apollyon	52	Chlorides	24, 28
B.		Cobar	70, 83
Badge's	60	Colorado	60
Ballarat	79	Colossus	46
Barrier Bischoff	80	Comstock	50
Barrier Mining	5, 24, 66, 68	Comstock Lode	26
Barrier Ranges Association	50, 54	Copper	59
Bendigo	86	Copper Blow	60
Big Hill	48	Copper Blow (B. H.)	46
Bismarck	48	Cosgrove	44
Black Prince	58	Cosmopolitan	81
Black Prince South	58	Cosmopolitan Extended	82
Block 10	32	Customs Difficulties	24
Block 14	17, 32	Cuter Australian	7
Bobbie Burns	54	D.	
Bon Accord	51	Dan O'Connell	51
Bonanza (B. H.)	45	Dalcoath	84
Bonanza (Thackaringa)	50	Day Dawn	55
Boom—The Mining	65	Day Dream	24, 54
Botallie	72, 86	Distribution of Wealth	32
Brinkworth	55	Drawback System	13, 67
Brinkworth Paddock	54	E.	
Britannia Extended	58	Eaglehawk	56
Britannia Scotia	58	Early Days of the Field	22
British Broken Hill	17, 35	Euriowie	75
Broken Hill—		Euriowie	69, 71, 75
Banking and Business	19, 20	Euriowie Central	78
Corporation for	22, 62	Euriowie Estate	79
Churches in	9	Euriowie Extended	79
Extension of	19	Euriowie Lode	78
First Impressions	6	Euriowie South	78
Future of	66	Excelsior (Euriowie)	78
Hotels	21	Excelsior (Nine Mile)	47
Importance of	5	Excelsior (Rockwell)	48
Land	6, 20, 63	F.	
Lode	15, 17, 39, 43	Farnell	82
On Saturday Night	7	Flats (B. H.)	45
On Sunday	8	G.	
Population	6	Gem	55
Residence at	8, 62	Gipsy Boy	51
Risks of Fire	63	Gipsy Girl	50
Water Supply	63	Gipsy Queen	51
Broken Hill Proprietary Company	24, 46		

	PAGE.		PAGE.
Gold	59	O.	
Golden Crest	57, 58, 59	O'Keefe and Beach	47
Gorge	46	Ormond	83
Grace Darling	80	Outward Bound	51
Granite Springs	85	Overworked Officials	10, 13, 20
Great Britain	57	P.	
Great Consols	48	Parnell	56
Great Northern	55	Picton	45
Green, P.	22, 49	Piesse's Nob	56
H.		Pine Paddock	72, 85
Hen and Chickens	54	Pine Paddock Proprietary	86
Hidden Secret	55	Pinnacles	24, 41
Hidden Treasure	46	Pinnacles Junction	42
Homeward Bound	51	Pinnacles Tribute	42
I.		Pioneer	22, 49
Imperial	44	Poolamacca Mines	24
Ironclad	48	Poolamacca	79
J.		Potosi	46
Jubilee	79	Protection	13, 66
Junction (B. H.)	17, 43	Prince Charlie	60
K.		Prince of Wales	80
Kaiser	46	Profitable Field	65
Kaolin	24	Public Institutions	20, 65
Kate	58	Purnamoota	24, 56
Kinchega	43	Q.	
L.		Queen Victoria	67, 80
Labour market	17	R.	
Lady Bevys	42	Railway, S. A.	15, 67
Lady Brassey	50	Railway from Sydney	19
Lady Carrington	55	Rasp, Chas.	24
Lady Don	70, 82	Red Flag	60
Lady Sutton	58	Redhill	47
Law—Administration of	21	Riddel, A.	15
Lubra	59	Rise and Shine	59
M.		Rising Sun	41
Maybell	58	Rising Sun South	41
Maybell South	69	Rio Tinto	80
Maybell East	59	Rockwell Paddock	47
Mayflower	57	Rockwell, Maiden	47
M. C. P. Titles	49, 60	Rockwell, Melbourne	47
Midnight Ramble	58	Rockwell, Melbourne South	47
Mine Managers	12, 61	Rockwell, Sydney	47
Mine Messages	11	Rockwell, Sydney South	47
Mining Fashions	37	Rockwell, Wilcannia	48
Mining Laws Defective	60	Round Hill	44
Morning Star	54	Ruby	82
Mount Bunchikana	71, 79	S.	
Mount Gipps	58	Second to None	47
Mount Lake	84	Sham Shares	61
Mount Lake Victory	84	Share Dealing	10, 19
Mount Lake South	84	Share Mania	5
Mount Robe	57, 58	Silver Coining	17
Mount Robe Extended	58	Silver Crown	45
Mundi Mundi	54, 60	Silver Dale	58
N.		Silver Experts	17
Naming Mines	61	Silver Field, Permanency of	6, 17
New Year	54	Silver King	57
Nickel, Julius	24, 49, 58	Silver King East	58
Nickleville	58	Silverton, Rush to	23
Nine Mile	47	Relationship to Broken Hill	51
Nine Mile District	46	Telephone to	64
North (B. H.)	17, 44	South (B.H.)	40
		South Extended	41
		South Extended No. 1	41

			PAGE.				PAGE.
Southern Cross ... ..	...	...	56	V.			
Stephen's Creek ... ..	...	...	55	Victoria ... ..	...	...	57
Stokie, J. ... ..	...	...	24, 49	Victoria Cross ... ..	...	...	44
Swindles ... ..	...	...	11	Victory (Euriowie) ... ..	...	...	69, 77
Sydney Traders ... ..	...	...	19	Victory No. 1 ... ..	...	...	79
Syndicate ... ..	...	...	37	Victory No. 2 ... ..	...	...	79
	T.			Victory Extended ... ..	...	...	79
Telegraphic ... ..	...	...	10	Victory South ... ..	...	...	79
Terrible Dick ... ..	...	...	55	Victory (Purnamoota) ... ..	...	...	57
Thackaringa ... ..	...	...	24, 29	W.			
Thistle ... ..	...	...	82	War Dance ... ..	...	...	57
Thomas, Captain... ..	...	...	73	War Dance Extended ... ..	...	...	57
Tincroft ... ..	...	...	80	Waukaroo Paddock ... ..	...	...	71, 83
Tinfield, values of ... ..	...	...	69	Waukaroo Proprietary ... ..	...	...	71, 73, 85
History ... ..	...	...	70	Waukeroo Bischoff ... ..	...	...	85
Geological Features ... ..	...	...	74	Waukeroo Blocks ... ..	...	...	84
Tin, position of ... ..	...	...	70	Waukeroo Consolidated... ..	...	...	85
Toogooroo ... ..	...	...	81	Waukeroo Consols ... ..	...	...	85
Tower Hill ... ..	...	...	54	Waukeroo Extended ... ..	...	...	84
Trade ... ..	...	...	14, 67	Waukeroo North .. ..	...	...	84
Treasure ... ..	...	...	59	Waukeroo South ... ..	...	...	85
Trident ... ..	...	...	79	Weal Byjerkerno... ..	...	...	82
Triumph ... ..	...	...	79	Western Fall ... ..	...	...	83
	U.			Western Star ... ..	...	...	85
Umberumberka ... ..	...	...	24, 52	White Leadline ... ..	...	...	40
Umberumberka East ... ..	...	...	53	White Lead Central ... ..	...	...	41
Umberumberka North ... ..	...	...	53	White Lead Proprietary ... ..	...	...	41
Umberumberka West ... ..	...	...	53	Wilcannia Comstock ... ..	...	...	48
Union ... ..	...	...	72, 86	Wilkinson, C. S., on Tinfield ... ..	...	...	72, 74, 84



THE BARRIER MINES AND SOUTH AUSTRALIA.

The above Sketch Plan has been prepared with a view of showing the relation of the rich mines in the Barrier District of New South Wales to the Province of South Australia. The district is about 600 miles in a direct line from Sydney. The distances by rail to various ports are as follows:—

Broken Hill to Port Pirie (South Australia)	253	Broken Hill to Melbourne (Victoria)	843
Broken Hill to Adelaide (South Australia)	333	Broken Hill to Sydney (New South Wales)	1,419

THE BARRIER SILVER FIELD.

No. I.

BROKEN HILL.

As your specially accredited representative in the great silver-mining district that geographically belongs to New South Wales, but commercially to South Australia, I left Adelaide for Broken Hill with a predominating feeling of pleasure. There is a natural feeling of satisfaction in seeing the wonderful and beholding what astonishes the world. And is not this true of the Broken Hill mines, the lode of which invites comparison with the great Comstock of Nevada, and the fame of which is able to make Australia better known than any patent scheme of federation or name-changing feat of a statesman? The hope that a simple statement of facts as one finds them in this marvellous mining district would not only interest the general reader, but assist the pioneers in the work of development, which is of so much importance to the common weal, was sufficient to nerve me against the reports of the trying climate and rough usage there. Friends with a kindness peculiar to itself seemed to take a mischievous delight in dilating to me upon the purgatorial heat, the oven-baking buildings, the blinding, suffocating, parching dust, the numerous tormenting flies, the dangerous water, the more dangerous spirits, the Bedlam hotels, and the increasing number of fatalities from heat and fever at Broken Hill at this season of the year. Obviously one whose life ordinarily passes with the serenity of a stream would be unsettled at the prospect of plunging in such a cauldron of discomforts. Sustained, nevertheless, by the sense of privilege, I went to prove that the reports were in all respects exaggerated.

There is something so thoroughly human about mining that, though one for perfectly intelligible reasons may never have had, as in my case, a single siphon in mining stock, he cannot, while subject to common sympathy and humour, fail to be interested in the pursuit, whether seen in the stages of patient prospecting,

laborious delving, or market bulling and bearing. When, however, it is responsible for a profound agitation throughout the chief Exchanges of Australia, when it is seen absorbing a vast share of the capital of the colonies, when it is the source of a new and large trade of our own colony, and when it takes besides tangible expression in populous towns, where otherwise the rabbit would reign supreme in its work of devastation, that interest grows into enthusiasm. Such is the case with mining on the Barrier. An enquiry into its progress and prospects must have a concern, then, for many besides those whose unconscious cerebrations are constantly revolving upon such cabalistic words as "Broken's," "Pups," "Centrals," and "Souths."

THE SHARE MANIA

Of the extraordinary way in which these expressions have been burned into the minds of members of all classes there is scarcely need for illustration; but an incident occurred during the tedious journey to Broken Hill (made tedious, by the way, through short-sighted railway management) that was at least suggestive. A tired traveller, wishful of pleasantly passing the time, invited some young men to indulge in a game of cards, but they declined, because in effect they said they had lost heart for playing cards in the passion for dealing in shares. Amongst the many passengers in that train for Broken Hill not a few were determined if possible to make money rapidly and retire from the field. Can it be wondered therefore that their talk was seasoned with the salt of the share market? Thanks to the wisdom of landing passengers in Broken Hill at the ungodly hour of 3 in the morning, I found myself "with whispered humbleness and bated breath" a suppliant for admission at a full hotel, and glad to take a third bed in a room. After a comparatively short sleep I was awakened by my room mates, domoiled as their conversation showed in Broken Hill, dis-

cussing the "old old story" of money making. Well educated gentlemanly men who had left young families in the city they revealed themselves to be. Said one—"I have come to make money. I intend to make it, and return to my family." And the other echoed the sentiment as his. Soon they wandered into the talk of brokers, the familiar terms of which lulled me to sleep again as if it had been some cradle song heard often before.

FIRST IMPRESSIONS.

These frank, genial interesting, keen-eyed room mates were like many other birds of passage so far as Broken Hill was concerned; they had not come to stay; they were roughing it, cheerfully looking forward to leaving the place with a "pile;" and everything with them there was of a temporary character. This impression prepared me for the appearance of the town. Busy, far-reaching, and in the presence of sources of wealth, the "sardine-tin," "rag houses," and "band-box" buildings were in ill contrast, rough and temporary. They bespoke haste and absence of style and stability. But just as my acquaintances may in the course of time settle down to a good and steady business, so the town may change, taking on a permanent aspect. Indeed, evidences of that change were not wanting on a closer examination of that sea of structures, the white roofs of which, seen from the Broken Hill top extending for miles around in the gully and on the hillsides, glistened like so much foam of the ocean in ferment. Immediately the vexed question of titles to business allotments is disposed of the few stone buildings now existing will be multiplied by hundreds on the sites of the paltry weatherboard and galvanized-iron "shanties," the tents, and the bush huts, which not merely give the settlement such a higgledy-piggledy appearance, but render it liable to be swept almost entirely away with the first fire, and make it a continuous source of danger to health. Remembering, however, that this new and feverish settlement of 6,000 people has sprung up within about two years, that nearly all the materials for 1,000 buildings have had to be imported from long distances, and much carted by slow-going teams, and the tenements erected as fast as possible, and that no money could be lent on permanent improvements until the mining industry had been firmly established, and the land question within

promise of satisfactory arrangement, it is even surprising to find so large a number there and the proportion what it is of creditable buildings existing among them. For lining the well-defined wide streets of this, perhaps, largest and most bustling town of its kind in New South Wales, where quarter-acre blocks range in price from £200 to £2,000 each plus the unlimited liability to the Land Board assessment for the grant of the freehold, several substantial stone buildings of one and two stories have at great expense been erected, while others are in course of erection.

PERMANENCY OF THE FIELD.

So far as permanency in a mining town can be predicted, in the case of Willyama, the official and unpopular name for the settlement at Broken Hill, it is assured. Already the mines in the neighbourhood employ, it is estimated, 1,500 hands, the Broken Hill Proprietary Company alone having 900, to say nothing of Block 14 and British Broken Hill Companies. Then there are the men working on the mines on the line of the Broken Hill lode and numbers of other claims beyond. The Broken Hill mines will, when active mining begins, employ many more hands, and the demand for labour in the surrounding claims must have a tendency to increase. Within the last year the population has increased by 2,000, the greater number of the people being South Australians; and it is confidently predicted that the population of the town will be 20,000 within twelve months. The strength of the feeling as to the permanent prosperity of the town is indicated in that everybody in Broken Hill appears to be satisfied. It is not merely that the men at the mines earn good wages—miners £3, labourers £2 10s., and others in proportion—and that the mines give orders for stores and sundries, but that a great deal of capital has been introduced into Broken Hill through the belief that it furnishes a means of genuine and profitable investment. Who could be other than satisfied? Men get good wages and capitalists large returns (some speak of 30 per cent. as a minimum interest), besides which all are on the road to fortunes. All sorts and conditions of men and boys speculate; professional men with University education, labourers who can scarcely write their own names, and boys who know all about the stock market and nothing about

their catechisms—all talk shares, all are ready to buy and sell.

"THE CUTER AUSTRALIAN."

Broken Hill is not only important as the visible sign of a new era in silver-mining in Australia, but is interesting in that it indicates a change which is certainly taking place in the tone of Australians. The profitable working of silver mines is bringing about something more than an addition to the material wealth of the colonies generally, and particularly to that of South Australia, it having an effect more profound than the conversion of blacksmiths, carpenters, miners, and labourers into sharebrokers, jobbers, land agents, and business men, and of transforming knockabout hands and parsons into silver kings; it is unquestionably altering the character of the people. One cannot be in Broken Hill long without perceiving how the race for riches quickens the mental powers. The thirst for information of any kind, scientific and commercial, which will serve the end in view is no less marvellous than the development in all classes, educated and uneducated, of the faculty for assimilating knowledge, and applying it to personal advantage. Whether in the great temptation that exists to cross the borders of genuine enterprise to share-gambling there is a great danger to undermine the moral nature so as to completely out-balance the value of the increased mental activity is a question that shall be decided by others; but the fact that a change is going on as described is one which cannot be denied by the observant student of human nature, not only in the growing town of Broken Hill, but in the established cities of Australia. Looking at the extraordinary progress of this continent, and the fact that the development of its resources is still in a state of infancy, is it straining the probabilities of the case to say that in the no very distant future the world will add to the phrase of "the cute American" another—"the cuter Australian?"

No. II.

BROKEN HILL ON A SATURDAY NIGHT.

The visitor to Broken Hill should not, if he can help it, miss Saturday night in the streets, and if he can possibly do so should choose seeing the town on the alternate Saturday when the "big mine" hands are paid. He will then get some idea of the numbers and nature of the

population, and of the prosperity and activity of the town. My first Saturday night in Broken Hill was on the quiet day of the fortnight, but still it was sufficiently lively to remind me of Rundle-street on the evening before Sunday. Let me describe it simply as I saw it. The principal street of the town, Argent-street, is the centre of traffic, and it is crowded with energetic good-humoured people, mostly men and boys, moving up and down where the numerous tradesmen display their wares in shops large and small, mostly small, as brilliantly illuminated as the best kerosine lamps will permit, or else congregating under hotel verandahs discussing various topics, the uppermost, of course, being mines and shares. Under the balcony of the City Hotel men are assembled in excited knots, constituting an open-air Share Exchange. The buyers and sellers are evidently miners who believe they have the "right tips." A short, thick-set fellow dressed—it is not safe to say in his Sunday-go-meetings, for it is the exception and not the rule for miners to go to Church at Broken Hill—but dressed at all events in his best suit, is heard calling out from a ring of shrewd speculators of his own station that he will sell a half share in some Saltbush Syndicate for £20, while another sandy-bearded shrill-voiced devotee of Fortune announces from the steps that he is a buyer or seller of "Pussies on the Flat." In the tobacconists' shops brokers may be found formulating Syndicates, to be afterwards floated into Companies, provided the public are wise enough to accept the intelligently framed prospectuses as gospels in silver-mining; and in the windows and on the counters of business premises are to be seen samples of ore averaging in one case, it was stated, 19,000 oz. to the ton, and in others, it is to be feared, very much less. Even the wives of residents waiting at the counters are posted in the details, and can discuss oxides, carbonates, and chlorides, as well as the number of shareholders and the prospects of success in the different ventures. The leisured class amongst Broken Hill women, who number about 900 out of a population of 6,000, is very small; but though they work very hard—and the surroundings of life here are very rough for both women and children—they appear in the streets to-night in comparatively large numbers and with cheerful faces. There are many married men on the

field, but the majority have left their families behind, mostly in South Australia, and he is a fortunate man who is able to have his family here and house them comfortably. Those who cannot offer their wives and children nothing better than galvanized iron, canvas, or bush shanties should consider the risks they run before taking them to Broken Hill. There have recently been several deaths from heat and typhoid, aggravated by the heat, which fatalities, a medical man assures me, might have been avoided had the victims been housed in buildings adapted to resist ordinary summer weather, and had they been circumstanced with proper sanitary arrangements and a safe water supply. However, the necessities of some cases require the presence of the family where the breadwinner is located, and how frequently will not wives and daughters rather rejoice in discomfort if only assured that their self-sacrifice is productive of pleasure to the objects of their affections. It is a cheering sight to see this prosperous crowd of busy workers in Argent-street preserving admirable order without the help of policemen. In the hotels a few toilers in the bowels of the earth are so elated with the change of air and scenes that they are demonstratively merry, while some others have drunk so deeply at the cool fountain of pleasure after the heat and burden of the week that they have passed into a profound sleep, and are enjoying the sweets of their paradise, while their forms are outstretched in the ankle-deep red dust on the footpaths. And so until a late hour the surging sanguine crowd of dust-stained fortune-wooing, hardy, determined pioneers of the coming city of Broken Hill pass and repass, cluster and part, wind and unwind as in some quaint dance, meanwhile exchanging courtesies and transacting business. The hum of conversation is varied by the enticing cries of the oyster-vendors at their stalls in the street, while the visitor is constantly reminded by the lights on the hill, the lurid illuminations from the furnaces, and the smoke from the stacks of the explanation of this human beehive with its stirring scenes and sounds.

"THE ETERNAL GRIND."

If the institution of the day of rest was ever needed in any place it is at Broken Hill, where the mind is feverishly employed from waking hour to sombre dream in exciting shared dealing. Nor

does this remark apply merely to those who do naught else but buy and sell stock, but to the working classes, who appear well versed in the subtleties of mining speculation as market-riggers themselves. If the traditions of our race and the force of religious opinion did not compel the formal observance of Sunday it would be a positive calamity for a community like this. With all the hedges which conventionality have erected for the preservation of the day that the wasted energies of the week may be recruited it is impossible for this engrossing lucre topic to be dropped. At breakfast, dinner, and tea somehow somebody will bring up the latest news from the mines and the market, and the table will be in spite of itself interested in the absorbing theme. One cannot walk through the streets without overhearing men speak of chances missed and not to be missed, and fortunes lost, made, or making; and though the sermon may for a moment turn the current of thought, yet before the worshippers have returned from Church the current has asserted itself again. For all that Sunday is a break in the otherwise maddening chase of wealth, and even those who find it hardest to escape from the allurements of the goddess are frank in their expressions of gratitude that an interval has been imposed.

To Adelaideans unaccustomed to any other scenes in the streets than the City of Churches presents on Sundays the sights furnished at Broken Hill have no common interest. At any hour during the week-day a large number of working men may be found standing, sitting, and lolling under the verandahs of two or three of the principal hotels, and, as they seem to be the same men throughout, the question arises, How do they get their livelihood and where do they reside? They do not desert their posts on Sunday, for with commendable loyalty they are there to supply one of the features of the town. Most of the shops in the town are closed, but the news agents open for an hour in the morning that subscribers to the Adelaide papers may obtain Saturday's issue. Though it does not furnish a large reading community, there is perhaps more newspaper-reading done in Willyama on Sunday than during the whole of the week, for if the weather should be too hot to venture out there is very little other literature present if it were in demand to occupy the time. It must be remembered that that inseparable

sign of a South Australian township—the Institute—is conspicuous by its absence. There is, therefore, no circulating library providing for leisure the strong meat of standard authors. It will, perhaps, be conceded, however, that the conditions of country life are generally recognised by Australian journalists, who furnish for country readers varied and excellent matter suitable to all classes of the community and all days of the week. If, however, the weather should be agreeable every horse and buggy and vehicle in the place is called into service, the country being scoured for miles by keen observers, and many who have not the fortune to ride take long walks. Some visit friends in distant camps and townships. Stern moralists cannot condemn people who sacrifice the daylight for flickering candle rays in the tunnels of the earth, or who spend days of drudgery in unfenced, ill-conditioned, ungardened shanties, for seeking to get a breath of the fresh mountain air. Nature demands compensation. And if in the course of their travels wearied Willy-amaites come, as they cannot help coming, upon the great objects of interest in the Barrier mines, what wonder that out of the abundance of the heart the tongue should speak in the old familiar language of prospects and profits?

CHURCHGOERS.

Only a minority in the town are Churchgoers. There is accommodation for less than 1,500 worshippers, and the Churches are not all full. Five Churches are erected, and a sixth is going up. Taking the Protestant bodies first, the Methodist people have three representatives. The Bible Christians, Rev. G. J. Sampson minister, have a Church seating 400. They were the first on the field, Mr. Sampson, who has had charge of the cause for over two years, having been initiated into the pioneer work by the Revs. Messrs. Thorne and Paynter. The Church, which was opened in May, 1886, is a galvanized-iron structure, with matchboard lining, costing about £560, and the average attendance on Sunday nights is from 170 to 200. There is a well-supported Sunday-school in connection with the cause, which is in a good financial position. The Primitive Methodists have an iron unlined building 40 x 30 feet, with seating accommodation for 250 and an attendance of 230 or 240. The Rev. J. Burrows, who is an effective preacher to the Cornish

miners, is in charge of the Church. The Wesleyan cause, which is entrusted to the Rev. A. J. Fry, formerly of Port Adelaide, has a Church capable of seating over 200, but the large congregations are forcing upon the office-bearers the necessity of building a larger Church. The Congregationalists, under the temporary but energetic and able leadership of the Rev. K. Mackay, of Warrnambool, have erected a galvanized-iron structure with seats for 300, at a cost, including land £200, of over £600. Mr. Mackay, who has been preaching in a shooting-gallery, has had crowded attendances. The Baptists have accepted tenders for a building to seat 220. The Rev. W. Collier, of Mitcham, who is in temporary charge, is holding services in a private verandah. The Roman Catholics have a nice Church seating 250 persons. Father Black is in charge, but the attendance is not very large. In addition the Salvation Army present a bold front to the "enemy." On Sunday afternoon they were pelted with rotten eggs, but as the supply of these missiles ran short not much damage was done. In the evening the familiar "strains of music" are heard from the "lads and lassies," headed by the band, of which the drum is a solemn factor. Large crowds gather round them, and in the margin interesting theological discussions may be heard, started by miners, who, objecting to dogmas, are nevertheless dogmatic.

THE COOL EVENING AIR.

As on Saturday so on Sunday night, the people in the streets may be counted not in paltry hundreds, but in thousands. On the hillside the mines are lit up as usual, the curling waves from the stacks passing over the hilltop with the easterly wind sweeping the town, and fiery balls shooting from the smelters in rapid succession, to be finally lost in the darkness, like meteors spent on a black night. Up and down Argent-street and the other streets with mineral names (Oxide, Galena, Chloride, &c.) the well-dressed people fill the footpaths and darken the roadways. A few shops are open, amongst them being tobacconists, fruiterers, and hotels, but with the exception of the last kind business does not seem brisk. The Salvation Army occupy a street corner, while here and there knots of men are gathered discussing what for monotony of repetition shall not be said. Each Saturday and Sunday night shows that the number of the fair sex in the town is in-

creasing. As they pass to and from Church and in buggies their dress betokens very distinctly the general prosperity of the place. Provision, too, has been made in the legion of drapers' shops for an enormous addition to the purchases of those sweet and mystic articles of apparel which make the ladies so dear to men.

Though the very sermons preached in Broken Hill are permeated with an allowance of wealth-seeking—right motives and means of course granted—the Willyamaite does not adopt the aphorism as to obtaining riches by retiring to rest and rising early. He is apt to watch the awful hour "when churchyards yawn," if one may judge by the noise which interrupts the sleep of the visitor; but it is perhaps scarcely fair to judge the town by this test. Owing to the enjoyment which may be obtained from spending the cool of the evening in the open air, the streets are not cleared at the early hour which is the characteristic of most South Australian towns. But in this matter, as in many others of note respecting the town now, it must never be forgotten that the place is in a state of ferment like new wine, which cannot be held in old bottles. Every day will see new customs springing up as it sees new buildings arise, enlarging, altering, and improving its character.

No. III.

SHAREDEALING AT BROKEN HILL.

Every man has his humours and every town its peculiarities. To this rule Broken Hill is at present an exception, in that it seems to have but one peculiarity—the mining mania, so fully developed as to hide and absorb any and everything else. If I seem to lay undue stress upon this matter it is simply because I am full of the subject from the continuous assaults made upon my ears. But I did not intend to refer to it just now except to introduce a reference to some features in the mode of transacting share and mining business. The first thing that struck me with surprise was that the local market is of no value as indicating the opinion entertained by the residents as to the merits of the mines. It is perhaps nearer the mark to say that there is no real local market, for most business is transacted with the capitalists by telegraph. The nature of the transactions may be gathered by the statement which I have heard frequently made [that shares are commonly bought and sold not with any regard to the genuineness of the mines, but upon some secondary consideration as to the reputa-

tion of the Directors, the movements of the largest shareholders, and sundry foreign circumstances. It is oftentimes difficult to trace what trifling event has led to activity in certain stock, or what machinations have brought about drooping in other more intrinsically valuable lines. No doubt in the long run with honest management the merits of a mine will tell; but the management being as liable to fall away with all the eccentricity of a lode itself, speculators find themselves like a flock of sheep, jumping or not jumping with the multitude who "follow my leader."

A DISGRACE TO THE SYDNEY GOVERNMENT.

The markets which rule Broken Hill are Melbourne and Adelaide. Sydney appears to be out of it. Every speculator has his own broker in the capitals, who sends daily "wires" of quotations. As showing the enormous business done by the Telegraph Department in this direction, it may be here mentioned that the business of the local office is about £150 a week, and the bulk of it is in regard to the share market. It may be added, by-the-way, that the telegraph-office is a perfect disgrace to the Sydney Government. The building is small and the staff insufficient. It makes one wax warm with indignation to see the Government of a rich province like the mother colony, in the year of her centennial celebrations, making handsome revenue at the cost of the life-blood of her officials. One cannot look at the cadaverous faces, with sunken eyes, of those operators without seeing how shamefully they are overworked. The expense of the office must be under £20 a week, the rest being scooped by the inconsiderate Government. Unquestionably the public suffer great inconvenience and even loss. It is impossible, for instance, I am told, for a business man, if he lodges a telegram in the morning, to expect a reply from Adelaide the same day; and I have had related to me examples of delays in the dispatch and delivery of telegrams which seem to be incredible. Yet no one here blames the officials, for it is generally recognised that within their ability they are patient, hardworking, and badly used members of the service. Did such a grievance exist in South Australia the Government would get no rest night or day until it had been attended to by the employment in a suitable office of a first-class staff.

MESSAGES FROM THE MINES.

It is astonishing to find that in a place so close to the mines by which it is supported so little late and trustworthy information should be generally obtainable. Indeed, it is a difficult matter sometimes to get information even by going to the mines. No one may inspect the underground workings without permission of the captain, and it is no common experience, after travelling for miles to the claims, to find him away on business. In his absence no one is permitted to give information or show the mine. However, there are agents in the township who make it a part of their business to establish means of communication with the mines by which they are able to immediately advise their clients in Adelaide and elsewhere any important alterations that have taken place likely to affect the price of shares. It is a fact, nevertheless, that Adelaide and Melbourne are frequently more quickly supplied with the latest intelligence from the mines than Broken Hill itself; and this accounts somewhat for business taking its cue from those cities.

AN ERRATIC MARKET.

Concentration upon one idea seems to be a feature of Australian life. In mining all attention seems to be now absorbed in silver, and in silver often the attention is devoted to one or two lines at a time, which are run up to a high price, a reaction, sometimes temporary, sometimes permanent, following. It is unfortunate, no doubt, for buyers at the top of the market to be thus left stranded, with no certain prospect of another flood to float them again, but it is on account of this risk that speculators in mining here need perpetual watchfulness and good judgment. As the moon has a star to companion it, the lion its jackal, and the shark its pilot-fish, so the jobber is reported to have his spy, middleman, or runner, whose vocation it is in a quiet way to find out intending buyers and sellers, ascertain their prices, and close where he can make a bargain.

MINING SWINDLES.

There are three principles which should guide a man as to mining speculation. He should wait before putting his money into shares until he has acquired some experience in the mining world; he should not engage in such speculations until he can afford to lose the amount for which he is liable; and he should have reasonable grounds for believing the concern to be

genuine. Perhaps there is no other sphere in which there is so much trickery possible and actual as in the mining—how often one hears of salted mines, fraudulent assays, and nursed properties. The early days of Silvertown furnished some painful experiences. Even practical men were “got at.” To give a single example, it was a common thing for miners to travel “on the slug.” A man would walk into a mining township, produce to the storekeeper a slug of very rich silver, and on the strength of having discovered a good claim get anything he wanted in the way of stores for himself and camp for weeks. Nothing else was found. Travelling “on the slug” does not obtain now. It is notorious, too, that unreliable assays were furnished, and quaint stories are still told in this connection of silver found in powdered bricks while the metal was undiscovered in ore. Now, however, competition for assaying by good men, including several young Australians from the Ballarat School of Mines, has furnished effective checks. But it is difficult to provide any self-acting regulator for honest management. The proper safeguard is a critical oversight by shareholders, but as in Mining Companies the *personnel* so frequently changes that it is next to impossible for any one member—even if he had the time, ability, and disposition—to create a sufficiently strong public opinion in the body as to keep fear continually before the Directors. In two ways may a property be nursed. By wilful mismanagement it may be forced into the market at a low figure and be snapped up by a few capitalists. Another mode is that when an important discovery is made as to the lode the fact is kept a secret save to a favoured few, who at once “bear” the market and then buy up largely at low rates. Then the discovery is published with a flourish of trumpets or revealed in more insidious ways, with the result that the shares are run upon and enormous profits are made by the swindlers. It is, therefore, a significant circumstance as to the tone of the mining world when the merits of a property are considered of less importance for the purposes of speculation than the reputation of those responsible for the management, because it unfortunately implies an uneasy feeling in respect to the general honesty.

There is one healthy sign here, and that is a feeling that there could be no more popular institution established here than a branch of the celebrated School of

Mines of Ballarat, for the classes would be eagerly attended, and the information would be put to practical use in the development of the mineral resources of the continent.

MINING MANAGERS.

It would not be fair to close this article without reference to a very useful combination amongst Mining Managers. The Mining Manager has a very responsible position. It is his duty to develop the property with the skill of an expert and the straightforwardness of an honest man, and it is possible that in the performance of his duty he may clash with his Board of Directors. There is only one honourable course in the event of his being blocked, and that is to resign, for he holds the balance between the Board and the public. He is in the service of the public dealing in the scrip of the Company as much as he is in the service of the Directors. This is the view entertained by the Mining Managers' Association of Australasia, which has a branch at the Barrier Ranges presided over by Captain Morrish, of the Broken Hill Central Company. The objects are set out to be:—"To maintain the rights and privileges pertaining to the position of Mining Manager; to assist each other in the development of the mineral resources of the colony; to protect and forward the interest of the mining investor and the mining community in general; and to use every legitimate means to induce the Government of the colony to fully recognise and effectively legislate for the mining industry; to secure salaries commensurate with the onerous duties incumbent upon the position of Mining Managers generally; also to assist each other in cases of sickness or accident." To show that the Association is not one of those Societies full of "sound and fury signifying nothing," it may be stated that a case of misconduct was not long ago decisively dealt with in the interest of the general public. A prospectus had been put forth, and on the strength of an opinion given thereon by a Mining Manager as to "known lodes" existing on the property it was floated. The matter was brought before the Association, who called upon the captain to furnish any evidence in his possession leading him to express that opinion, and a committee was appointed to examine the property with him to point out any indications. The following rule of the Association enabled them to deal with the case:—"Members

of this Association shall work their mines for the best interest of the mining investor, and shall in no case whatever become directly or indirectly parties to any unfair or untruthful report as to the prospects of the mines under their charge, or in the event of any valuable new discovery being made in any mine under the charge of any member of this Association, such member shall immediately report the same through the legal Manager. Any infringement of this rule will be followed by the summary expulsion from the Association of the member so offending." To make a long story short, the charge against the member was sustained, and the penalty under the rule passed. There are fifty members in the Barrier branch, and the faithful performance of its duties must materially aid the progress of silver-mining there. There are Mining Managers on the field whose word is regarded by those who have seen them tried as their bond, and it is remarkable what an effect they have in sustaining the confidence of the public in the properties in which they are concerned. It is to be regretted that institutions similar to the Mining Managers' Association do not exist in South Australia for the benefit of Mining Managers and the protection of mining investors.

No. IV.

TRADING OBSTRUCTIONS.

The masterly policy of inactivity, *alias* blundering and plundering, that distinguishes the Sydney Government at the Barrier is in danger of being imitated by the Adelaide Government. It is difficult to say who are here the more unpopular, the phlegmatic Sydney Government or the short-sighted Adelaide Administration. Certainly the Sydney Government have been greater sinners by grabbing a handsome revenue from Broken Hill (worth now about a quarter of a million sterling) and blinding their eyes to the absolutely necessary work of the township; but then they have never professed friendship for the place—it is said to be even a question in Sydney where the Barrier is—and they have never been guilty of desiring to advance its progress. On the other hand, the Adelaide Government have given the field a railway, their people have furnished it with a population, their capitalists have sent it money, and their traders goods, while the authorities have meanwhile been extravagant in their professions of sincere friendship. Though the Adelaide

Government have been guilty of Customs bungling and railway mismanagement only, yet these are unpardonable offences as springing from sheer stupidity, and as leading to an unnecessary diversion of the trade to Sydney. The New South Wales authorities are in the position of the man who, not knowing the will, escaped with a few stripes; but their Adelaide contemporaries must take the situation of him who, knowing the will, refused to do it, and deserved to be beaten with many stripes.

EVERYTHING IN OUR FAVOUR.

It is generally conceded that the South Australian trade with Broken Hill is worth having, getting, and keeping. Broken Hill represents a prosperous and permanent mining district of 10,000 people, exclusive of the Silverton population, with the prospect of the number being quadrupled in a year; it has in Willyama the site of a city of perhaps 2,000 buildings yet to be erected within the next three or four years; and it is a locality where hundreds of thousands of pounds of capital will be spent on reproductive works, in addition to the distribution of thousands of pounds weekly in wages and mining dividends and profits. Commercially it belongs to South Australia, with Adelaide by a long distance the nearest city, and Port Pirie its nearest port. The great majority of the people are South Australians, with families and friends in South Australia, and every desire to trade with and benefit (other things being equal) South Australia; and as much of the capital expended in the district is South Australian there are other claims to the trade for South Australia. The Government have given the people railway communication, and they acknowledge the enterprise with gratitude. Everything is therefore on our side, and nothing remains but that the trade shall be left unobstructed. No facilities are really wanted; all that is necessary is that the trade shall be allowed to take a perfectly natural and uninterrupted course.

THE ONE THING NEEDFUL.

If only our Government had had the energy to free this trade there would not have been the grievance under which South Australian traders are smarting, and which will necessitate their establishing houses in Sydney. It is our misfortune that at the very time of the development of the Barren fields we should be experimenting

with a protective tariff, which is playing the trade into the hands of Sydney. No doubt it is true that within certain limits the Government try to assist the Adelaide merchants by means of drawbacks. It is justly said that no one can have an idea of the magnificence of the Broken Hill mines until he traverses the tunnels in the enormous areas of rich and varied ores; and it is equally true that no one can have an appreciation of tariff torture until he has had a practical experience in the winding courses, the endless red-tape, the volumes of official documents, and the unceasing bother of the drawback system. In speaking thus strongly one does not in the least blame the courteous Customs officials, who try to expedite matters, but the obstruction to trade through the continual application of the system is enough to make a liverless man bilious. Take a case. A storekeeper in South Australia receives an order for an assortment of goods from drapery to tinned fish. If he is to get the rebate on the articles on which duty has been paid on entering the colony, he must pay a Customs officer 3s. an hour to see the goods packed, make out several sets of detailed invoices, make a declaration that the goods paid duty on entering the colony, and provide bonds for the truthfulness of his statements. His troubles are not yet ended. The case has been bound in red-tape, and the Customs seal affixed in melted wax. On arrival at Broken Hill entries have to be passed for their admission into New South Wales, and duties paid under the Sydney tariff. Still the drawback is not payable. The signatures of the South Australian Customs officer, who resides at Silverton instead of Broken Hill, has to be obtained to the certificate that the goods have been properly received in New South Wales. The money is not payable yet. That certificate has to go to Port Adelaide, and after two or three days the Port agent of the exporter may receive the sum. Think of the trouble, time, expense, labour, and annoyance involved in these cumbersome operations.

It is absurd that a trade the very existence of which now depends upon its freedom from pettifogging municipal government interference should be subject to three distinct Customs operations. One of them we cannot help, namely, the collection of duties by the New South Wales officers, who, by-the-way, are, like the other employés of the Sydney Government in the town, overworked, and cannot at all times keep pace with the require-

ments. To say, however, that the drawback system cannot be simplified is to speak in antediluvian language. It can and must be greatly modified. But before considering suggestions under that head one thing ought to be done, and that is to allow the full amount of duty in all cases as rebate. Why it is I cannot understand, but I am informed that a percentage on ad valorem lines is retained by the Customs, and not on the rated. Just recently I was discussing the matter with two of our large Adelaide traders, who say positively that our drawback system is killing our trade in such lines as furniture and ironmongery.

SIMPLIFYING CUSTOMS OPERATIONS.

Several schemes have been suggested for simplifying the drawback system. One is that the South Australian Government should collect duties under their tariff on all goods sent to the Barrier and pay the New South Wales Government in monthly or quarterly payments the sums due on the imports under their tariff. As, however, the South Australian tariff is higher than the New South Wales tariff the former would make a handsome profit by the transaction, and that too at the expense of the South Australian trader; and this proposal would involve a complicated scale of export bounties in respect to the Barrier trade. So far as exporting goods from bonded stores in bond, it seems unnecessary to put them in sealed cases when the packages can be put in railway trucks to be considered bonded stores during transit. This suggestion would, if carried out, greatly help the Adelaide merchants. There is, however, a large trade done in goods exported from inland towns on which goods the duty has been paid. For these traders something must be done. It is difficult to see why one of the two Customs operations performed for South Australia cannot be omitted. Where is the real necessity for seeing the goods packed if one of our officers saw them unpacked at the time that the goods must be dealt with for the purpose of the Sydney tariff? Let the application for drawback be made at Broken Hill, let the claim to it be examined there, and let the payment of the drawback too be made there. The only guarantee which the Customs now have that the goods have paid duty is the declaration of the exporter, and that can be sent to Broken Hill with the application for drawback. It must be remem-

bered that most of our houses have branch houses or agencies there now, and the concentration of the business there with the omission of the most expensive operation will be a distinct advance. This proposal will, no doubt, strike terror into the hearts of red tape, but the weal of the community should rise superior to any such disaster. It may be said that it would occasion expense in keeping a staff of officials at Broken Hill to attend to the large business the change would involve, but is it not worth a little expense? How much would it pay South Australia to give New South Wales for the cession of the Barrier Ranges to our province? Besides, it would not be necessary to examine every case any more than it is necessary to take the contents of every package imported into the colony. It would be sufficient to take a case here and there to verify each importer's claim, providing stiff penalties for any attempt to defraud.

DIVERSION OF TRADE TO SYDNEY.

That trade is being diverted to Sydney is absolutely certain. In coming up to Broken Hill I was in conversation with one of our South Australian traders, and he told me that in consequence of the handicapping of trade through the protective tariff and the drawback system his firm had decided to establish a house in Sydney, and send thence in bond via Port Pirie. To-day in talking with another trader he told me a similar story. South Australia is to be reduced to common carriers instead of suppliers to the Barrier, and all through a want of statesmanship and administrative capacity to seize a golden opportunity. Once the trade goes it will never be regained.

ANOTHER TARIFF TORTURE.

Another tariff trouble is the double-barrelled railway tariff from Adelaide to Broken Hill. It is of course necessary that merchants should be in a position to calculate the charges on goods in order to fix the lowest possible selling rate. Only that it is unkind to send more patients to the Parkside Asylum one might ask for a solution of the problem as to which is more difficult to interpret—Playford's or Pendleton's tariff puzzle. Supposing, however, that the merchant has worked out the amount of drawback and New South Wales duty he has to enter into abstruse calculations as to what freight he must pay under the political railway tariff. Then he adds according to

another classification what he must pay under the commercial tariff of the Silverton Tramway Company; and when he has sent the goods away he probably finds his conclusions all wrong by a reasoning which converts everything to the production of the greatest revenue.

RAILWAY MISMANAGEMENT.

Only one other matter here. The railway management is on the same illiberal scale as the drawback system—penny-wise and pound-foolish. Can anything more idiotic be imagined than landing fifty or sixty passengers, including women and children, between 3 and 4 o'clock in the morning in a town where hardly an hotel has a bed to spare. But I am wanting in perception. I am reminded that it is an ingenious device to give visitors a fitting introduction to roughing it at Broken Hill. Certainly they do have to rough it. This morning a large number of the passengers stood knocking, knocking, knocking at the hotel doors, only to be denied admission or granted leave after pitiful pleading to sleep in the balcony or in crowded bedrooms. Surely the passengers are grateful to the South Australian Government for the opportunity of cheerfully paying half a crown to get half a dozen winks in the nice cool open air of an hotel balcony. Then, again, it is an ingenious device to keep the hotelkeepers employed at night as well as by day. If they want a night's rest like other mortals, then they ought not to be hotelkeepers in Broken Hill. Besides which it has the advantage of preserving by night those charming sounds of vehicle traffic that weary Willyamaites may be awakened to bless Mr. Commissioner Catt. Why, with a large and growing traffic, a train could not start from Adelaide and Broken Hill at a quarter to 5 in the evening, travel all night, and land the passengers in Adelaide and Broken Hill for breakfast, only Mr. Traffic-Manager Pendleton can tell us. He is pleased to obstruct the development of this best-paying line in South Australia because it would involve travelling at nighttime and the line is unfenced for the narrow-gauge portion of the route. I was going to say "Bosh!" but withdraw it. The train travels at present on the same part all night from Broken Hill and up to 3 a.m. from Adelaide. Then he urges that it would necessitate the employment of a second shift of men. Well, what of that when the traffic warrants it? In ten days 1,500 persons travelled on the

line, and if the alteration were made I am assured by residents that they would frequently go to Adelaide, where under the present table the time taken by the journey prohibits it. The last loophole is that more rolling-stock would be required for the change. Unless the Manager expects an enormous addition to the passenger traffic it is difficult to see what extra rolling-stock has to do with the question when the same number of trains only are required. The advantage of the proposed alteration can be seen by an illustration. A business man could leave Adelaide on Monday evening, and arrive fresh the next morning at Broken Hill. He could spend Tuesday in doing business in the town or in inspecting the mines, catch the evening train for Adelaide, and arrive in time for Wednesday morning's business. The same would apply to people from Broken Hill.

No. V.

THE BROKEN HILL LODE.

As a geologist Mr. A. Riddel, J.P., of Thackaringa, is considered an authority on the Broken Hill lode. Before introducing his opinion which he gave me at Broken Hill it may be interesting to state some of the remarkable facts of his life. As a young man he was connected with Dr. Livingstone's Mission in Central Africa, where, by the force of his character, Mr. Riddel ruled the rude chiefs for 500 miles round, preserving order and prohibiting slavery. Repeated attacks of malarial fever sent him home, and he came to Australia with shattered health. For four years he has been on the Barrier Ranges. He started, in conjunction with Messrs. Schooner and Finlay, the *Broken Hill Times*, of which he was the Editor until he sold his interest in April of last year to Mr. E. J. Stephens. Being in Sydney on business he heard of the White Rock, and having inspected the property was convinced that it was a good one. He secured a twentieth interest in it and took up leases of adjoining claims, which will, according to the estimated value, set him a long way on the road to a millionaire.

It was his opinion, however, as a practical man who had had exceptional opportunities of studying Broken Hill that concerned me most. He said:—"The country around is chiefly micaceous schist, with dykes of syenite and diorite. Both on the east and west of this Broken Hill line of country there is a defined bar of gneiss, verging into micaceous schist

as it goes nearer the lode, and getting more crystallized the further away from the lode. The trend of this rock is very marked, both on the east and west side, having a rapid underlay to the west, so that should the ore body be directed in its course, as it seems probable, by the enclosing walls, the underlay blocks on the line are bound to get the lode at a reasonable depth. The continuity of the ore body, forming as it does an immense bonanza 2 miles in extent—namely, from the South under the Central to the north boundary of the Junction—is in harmony with this theory. We have also the additional fact that in no case has the ore been found to run across the strata. This is of great importance in determining the value of all blocks on the line, since they have traced the ore-bearing portion both north and south such a distance; and the occasional bunches found below, such as in the Rising Sun on the south and the Cosgrove on the north, seem to promise well for the intervening blocks. It is, of course, too early to predict with certainty the comparative richness of any one block. This can be proved only by an expenditure of capital and labour.

THE PERMANENCY OF THE LODGE.

“Taking into account the fact that in McCulloch’s Shaft in the Proprietary Company’s property they have reached sulphurate ores, and have found the lode persisting in a strong body upwards of 20 feet in thickness in the seam which they have cut, with the walls well defined, there need be no immediate anxiety regarding its permanence at a depth, and very little regarding its payable nature. Of course in the matter of treatment the deep-level ores will be required to be dealt with in a different manner to that obtaining for the carbonate ores near the surface; but with a man of Mr. Patton’s experience and the wealthy Company over whose operations he presides no difficulty need arise in adapting the machinery to the requirements of the ore, both as regards the quantity to be treated and the cost of doing so. If this business of treating the deep-level ores be commenced before the carbonate ores become scarce, and a sufficient reserve of capital is put aside to meet any additional expenditure in the erection of special machinery, the dividends payable may go on increasing while the mine is being developed both in deep levels and

being worked in the present drives and stopes. This, I believe, is the present study of the Directors and of Mr. Patton, the General Manager. A large concentrating plant has been ordered from America, and no doubt other machinery will be found as occasion requires. In addition to supplying the wants of the mine, the experiments and successes of this mine will be a valuable education for the silver-mining community of Australia.

“The output from the Proprietary Company’s mine has not in any degree lessened the quantity of ore obtainable, as most of the ore hitherto used has come from developmental works such as shafts, drives, and tunnels, the great body of ore exposed being still left in blocks between various shafts and along the various levels of the mine. The new plant, the three 80-ton furnaces lately added, as well as the five 30-ton furnaces at present running, can be easily supplied by commencing in one of the stopes ready for work; and if required the output can be easily quadrupled without inconveniencing the Mining Manager. This fact taken in connection with the completion of the railway to the foot of the hill, with the cheapening of timber and carriage of coke brought to the mine, and of the carriage of bullion away, will of itself be an additional dividend to the fortunate shareholders by the lessening of expense as compared with that of the previous time.

IMPORTANCE OF THE “CENTRAL” DISCOVERY.

“The discovery of native silver in the Central of unexampled richness and in enormous quantity has something to do with the present boom in silver stocks. I believe that a considerable amount of capital has been set aside for investment in these securities of late, but it was chiefly the discovery in the Broken Hill Central which led to the phenomenal figures reached by the ‘Broken’s’ within a fortnight after the opening of the market this year. The Manager of the Central estimates that he can send away 100 tons per week, averaging 100 oz. of silver, and from the appearance of his mine it need not be doubted. This will be a welcome addition to the ore-producing mines of the Barrier, as the faith of shareholders in so many unproductive stocks was beginning to be severely shaken, and it used to be a byword to ask ‘How many of your Barrier mines are paying dividends or

producing ores at all? The answer was quite as hackneyed, 'Only the Hill.'

THE JUNCTION.

"The Junction is also an ore-producing mine, although the unfortunate position of the shafts at the end of the footwall did not render the raising of ore there as easy as it might have been had the shafts been more westerly placed on the mines. The erection of a concentrating plant on this mine by the Barrier Ranges Concentrating Company will make the large bodies of ore marketable, and by taking out the gangue and silicious matter the quality of the ore dispatched to market will be of a high grade, thus lessening the cost of carriage of useless material and in every way saving expense.

BROKEN HILL NORTH.

"The Broken Hill North has lately been furnished with efficient machinery, and the Manager is confident that he can make the mine dividend-paying on the completion of his arrangements.

BLOCK 14 COMPANY.

On Block 14 the machinery will be soon completed, and with the energy characteristic of its Manager, who is also Manager of the British Broken Hill Company (Mr. S. R. Wilson) great things may be expected as soon as the smelters begin to pour forth their products.

BRITISH BROKEN HILL COMPANY.

"With reference to the British Broken Hill Company, the strictures of certain members of the London Stock Exchange will receive a rude rebuff very shortly. Mr. Wilson has his shafts and drives extended a little further, and he has to ask the Directors for some appliances for reducing the ore which he will be finding by the hundred thousand tons. There is no doubt but that the shareholders in the British Broken Hill Company, who are accustomed to 2½ per cent. interest on their money, or perhaps even less, will in time duly appreciate the proportion which the dividends will bear to the sum of their investment, and as soon as that is ascertained by the British investing public a boom in these stocks is bound to ensue, which will have a reflex action on the value of other stocks on the line, inasmuch as their introduction to the European market will be an absolute certainty. Already the mining journals of the world are becoming aware of the good things we have found about the Hill, and the selec-

tion of Mr. Patton from the boss silvermine of America to fill the post of Manager on the Hill was a gigantic advertisement which in itself is bound to bear fruit.

THE NEED FOR EXPERTS.

"Australia will presently be drawing upon America for a few more of its experts, as throughout the whole of New South Wales and parts of South Australia silver is being discovered in highly payable quantities, and the inexperience of the community engaged in silver-mining in South Australia renders the stock of efficient experts to cope with the various classes of ore exceedingly scarce. But no doubt we shall presently be producing a class of native-born Australians who will be equal to the occasion in all lines of the art of silver extraction and reduction.

A QUESTION FOR AUSTRALIAN GOVERNMENTS.

"Why do not the Australian Governments get a charter to coin silver in the colonies and sell it to the East? They could make rupees for India, dollars for Japan, and money for China. The alloy that is mixed with silver is sufficient to give the Government a handsome profit."

So ended my interview with the new Australian mining king.

No. VI.

THE LABOUR MARKET.

Scenes change rapidly in Broken Hill, each successive week witnessing marked alterations in the appearance and conditions of the town. No factor has been so patent as the opening of the railway from Adelaide in rendering possible the transformations which the development of the mines and the energy of the people justify and demand. A year ago the town passed through a period of depression because it was then by no means clear to the majority that there would be dividend-paying concerns besides the Proprietary mine, but when it was considered certain that there would be payable properties for miles around the township, capital was freely employed in the purchase of land and the erection of buildings. And the assurance is deepening by current events, accounting for the large number of men engaged in and about the township. The marvellous growth of the district—the population being three and a half times more than it was a year ago—is due to the conviction

of capitalists that the permanency of an extensive silver field is a question beyond dispute.

In all large settlements which spring up rapidly wages and profits are high, attracting in course of time large numbers of labourers and business people to share in the phenomenal prosperity. Obviously the competition must ultimately reduce both wages and profits to an ordinary level. This is the process now obtaining at Broken Hill, and it may be said to have been fairly initiated with the completion of railroad communication. Whereas a few weeks ago there was a scarcity of labour in the district, to-day, owing to the large numbers brought to the town by rapid and cheap travelling, the labour market is overstocked with miners, clerks, and mechanics (particularly the two latter), though not to the alarming extent reported in Adelaide, and business is overdone. If, however, the flow of immigration should cease for a short period, the demand would overtake the supply. The condition of the workman here may be summed up in the statement that it is considered that wages are generally 20 per cent. higher than in Adelaide, and living expenses 50 per cent. dearer; but he has an advantage in permanent employment. As to the tradesman, owing to competition, he looks for advantage not so much to his ordinary business as to the opportunities proffered for remunerative speculations in land, buildings, and shares.

At the meeting of the Adelaide Trades and Labour Council on Friday evening a startling statement was made that there were 2,000 men out of work at Broken Hill, including miners, masons, and labourers of all classes. If a nought were dropped the figures would be more nearly correct. Having made enquiries on the spot from different sources, I find that 500 would be an outside number of the unemployed, and these for the most part represent new comers. It is difficult to understand how even that number can be unemployed, while it would be impossible for a large body of men to be long in want of work without the fact becoming generally recognised.

The wages of good miners are £3 a week, of labourers £2 8s., of carpenters 11s. to 12s. a day, and other tradesmen in proportion. There is no doubt but that the influx of men beyond the requirements of the place is likely to lead to a minimum wage. A short time ago the carpenters

agitated for a uniform pay of 13s. a day, but became contented with 12s. Several establishments now give only 11s., and one firm will next week reduce it to 10s. for all but the best class of workmen supplied with tools. When the conditions of life are rendered more agreeable, and men bring their families, and living expenses come down, as they will in time, the tendency towards the equalization of wages here and in Adelaide will become more pronounced. The water in two reservoirs in similar circumstances tapped and connected will be found preserving a uniform level. Adelaide and Broken Hill are reservoirs to the labour market, and the railway is the communication the effect of which is already in view.

While it is necessary to point out the unnatural gloom in the picture presented to the Trades and Labour Council, there is reason to deprecate a rush to the Barrier. For exceptional men with talent, experience, energy, and capital, who will work early and late, seize every opportunity to rise, be equal to all occasions for money-making; men, too, with good constitutions and decision of character, there is a splendid opening in Broken Hill, which is undoubtedly destined to be a city fed by numerous large-sized towns clustering about leading mines for 50 miles around. Of such men, it is not going beyond the case to say, there is a fair sample—men in the prime of life, above the average in business ability, with fixity of purpose, and a vested interest in success. But commonplace characters, clerks, shopmen, mechanics, and labourers, who have no ambition or ability to rise, had better remain away. There are no easy-going billets to be had. For some time to come life at Broken Hill must be hard and rough. The work is the work of pioneers with will and nerve and muscle. Moreover, the insanitary state of the town and the difficulty as to house accommodation must be additional reasons for advising people to pause ere coming here to settle.

That there will be no diminution in the present demand for labour seems sure. Should the silver boom pass away a number of small claims worked now with a view to being floated on the market will cease to employ labour, some mines prove duffers, stocks be low again, and the depression in share-dealing find several plungers, brokers, and spies with their

occupation gone ; yet the big mines must go on, the dividend-paying concerns be multiplied, the amount of the pay-sheets increased, and the building of the city uninterrupted. The extension of settlement is proceeding with great rapidity. Last week a southern wing was pegged out near to the Broken Hill Central mine, while north and south residences are being erected a mile-and-a-half distant from the post-office, and it must be remembered that a condition of holding a block is personal residence. This perpetual expansion is unrelated to a temporary population. Only those who have business in the district or employment of some kind can afford to comply with the personal residence clause. Notwithstanding the daily addition to the places of residence rents are still high, a four-roomed cottage being advertised as cheap at £1 a week. Central sites fetch what seem to be extravagant prices, £2,000 being a moderate demand for a quarter-acre block in the main street. If all the married men in the district sent for their families the addition would be 50 per cent. to the population. It should not be forgotten, as previously mentioned, that the city has to be almost entirely rebuilt. The builders of the town have therefore no doubt but that the trade will continue as brisk as it is now for a considerable time.

BUSINESS AT BROKEN HILL.

The reason that no complaint is heard, except by accident, as to business being overdone is that most tradesmen are engrossed in making money in the mining world. The extent to which sharemongering is carried on has been referred to before, but I have since obtained from a competent authority an estimate of the share transactions in this town. He puts the amount down at not less than £70,000 a week. The *modus operandi* of share-dealing appears to be that a broker buys from an Adelaide, Melbourne, or Sydney contemporary who draws upon his Broken Hill client, and as the latter draws upon his agent elsewhere very little actual cash passes. It might be thought that the Broken Hill tradesmen are running close to the wind in contending against severe competition and incurring the risks of mining speculation. In their behalf it should be said that the mining boom is not created in the town, for the people are too longheaded. They know fully well that the market

value is not the intrinsic value of the stock, and they simply buy and sell quickly, keeping well within their limits. While there must be about £10,000 a week distributed in wages every week, a large amount is drafted away to mining townships in South Australia for the sustenance of the families of men here ; and it can be at once seen that if the families remove here, which will probably take place at no distant date, there will be a noticeable improvement in trade. A man who earns £12 a month will remit £7 to his family, retaining £5 for himself. If he lives in a tent, his board will cost about 10s. a week, and the remainder will be devoted to clothes, luxuries, and speculations. The source of wages paid here may be traced to mining capital, sales of ore and dividends, to other imported capital for large buildings as hotels, and to savings from wages for minor improvements.

As to the nature of ordinary business, it is said to be decidedly healthy. But in discussing this point just now with a Sydney traveller who is canvassing the town with a view to establishing a branch house, he pronounced an entirely opposite opinion. He affirmed that it was not good enough for Sydney people, though they could deliver goods at Port Pirie duty paid for the price charged in Adelaide duty to pay, to enter into the trade, because of the extent that the credit system has been carried to. I am, however, disposed to think that the extent of the credit system was magnified, and that the real difficulty in the way was the fact that better prices may be obtained within 300 miles of Sydney than in Broken Hill owing to the competition of South Australian merchants, who having emerged from a cloud of depression are content with small profits. It was refreshing to see our Sydney friend in Broken Hill—a town so thoroughly filled with South Australians that but for Governmental neglect it would be difficult to find any reminder of New South Wales. He was strong in the conviction that within a year the Ministry of his colony would make a light line from Hay or Bourke to the Barrier, and work it at a nominal freight in order to block South Australian trade ; but here again I find myself forced to differ from him, for *cui bono*, when Sydney may have the trade on better terms by using the Port Pirie line and trusting to the South Australian Governments predilection for hampering trade ?

But I have digressed somewhat. I have it from several sources that the credit system is limited in Broken Hill. Very few accounts go unpaid beyond a month, while the majority are cash transactions. It is natural to believe this is so, where, while the body of the people are South Australians, they are for the most number entire strangers in business. Besides, other circumstances of business are special, demanding prompt payments.

BANKING.

There are five Banks, and it is rumoured that a sixth will shortly be represented in Broken Hill. The Town and Country Bank was the pioneer financial establishment, but on that institution merging into the Commercial Bank of Australia the branch was closed. It has since been reopened, but meanwhile the Bank of Australasia had gathered up the leading business, and does perhaps more than all the others put together. However, the remaining customers are divided between the Commercial of Australia, Union, Bank of South Australia, and National. The London and Chartered Bank is reported to be the newcomer. With regard to banking business, it is very much hampered by the want of security under the Land Act. There are only about two titles worth looking at in the township, the rest being held under business licences on condition of personal residence.

The conclusion of my enquiries is that though the labour market is overstocked it is not through any check in the progress of the district, but the desire of too many to share in its prosperity; and that, though business is overdone, there is no sign of unhealthiness in trade, the cause of the plethora here again being not the fewness of the plums, but the host of plum-seekers. The law of the survival of the fittest is scarcely likely to make Broken Hill an exception.

NO. VII.

SOME PUBLIC INSTITUTIONS.

The public institutions of Broken Hill are a positive disgrace to any colonial Government. Whether it be the telegraph or the post-office, the Police or the Customs Department, the officials are over-worked, with consequent loss and annoyance to the community. The only thing that the central authorities seem able to do well is to receive the handsome revenues from the district.

Probably the most patent grievance is connected with the post-office, the business of which is enormous. There is one big mail a day, the mail from Adelaide which arrives in the town at 3 o'clock in the morning, but the letters from which are not available for the public until 9 o'clock. A few private letter-boxes are provided for subscribers, but the number is so miserably inadequate that the right to a partial use of a letter-box is reported to be worth £2 10s. If a Willyamaite is obliged to trust to the tender mercies of the postal delivery, he may get his letters and papers some time during the day, but it is not safe to depend upon their receipt during the forenoon. But should the unlucky resident be beyond the limited range of postal delivery or have his letters addressed to the post-office, he will get such a taste of vexatious postal arrangements as will well nigh drive him mad. From 9 in the morning till 6 in the evening the little pigeon-hole window of the wooden shanty is crowded with twenty, thirty, and sometimes more miners, clerks, boys, women, and non-descripts, all huddled together so as not to miss a chance of asking the steady-going official whether there is a communication for him or her. It is a common thing for one to wait two or three hours for his turn to watch the young man go through all the letters in the alphabetical bundle appropriate to his name. Imagine the discomfort of standing in the scorching sun against a heat-reflecting building wasting precious hours, unable to leave without the valuable packet containing a remittance or matter of great import. How the patient people have borne so meekly the monstrous insult to the town and trade passes ordinary comprehension. But for the newness of the settlement and consequent want of unity amongst the people, and the fact that most of them are South Australians who have passed into New South Wales like children into an unkind stepmother's care, they would have risen as one man to put an end to such neglect. Of what use is it to ask the Sydney Government for anything is the feeling at the bottom. It is impossible to understand why the postal officials of Sydney should not in their own interest attend to the complaints. For instance, it is out of the question to buy stamps at the post-office, for the only officer who can be spared of the numerically feeble staff to attend to the public is engaged in handing out the letters at the pigeon-hole. One

cannot help pitying the young officials who, working sixteen hours a day in an office unfit for the requirements of the large business, can never give the public satisfaction nor keep pace with the routine work. Yet it is said with gruesome satisfaction that the accommodation is palatial to what it was, and the facilities an enormous advance upon what they were! Except that one had experienced some of the annoyances he would scarcely credit the defective character of the postal arrangements.

A message could be sent to Adelaide in less time by train than by telegraph. That is the repeated experience at Broken Hill. I have already referred to the volume of business and the inability of the staff to cope with it. To put the best face on things let me, like Mark Tapley, say that I have heard of cases of remarkably rapid transmission of telegrams between Adelaide and Broken Hill. The record has been broken by only twelve hours being occupied. Besides which there is some satisfaction in contemplating that if a man loses £1,000 through telegraphic delays he can spend £100 in making the Government smart to the extent of £5.

In South Australia if a screw falls out at a public well, memorials, deputations, and indignation meetings follow in quick succession, but in Broken Hill the magnitude of its intolerable burden of injustice is still insufficient to provoke an indignation meeting. When it does come let the Premier, though he be now merry, tremble, for the fires of wrath are silently gathering. I was just now reminded by some Victorian visitors that such maladministration would not be tolerated in their colony. The retort was that New South Wales stepped with the measured caution of matured wisdom, while Victoria moved with the excessive energy of youth. It is possible that the Sydney Government, behind a cloud of neglect, in wisdom hide a kindly intention. They do not propose to give Broken Hill any good thing until by repeated requests it furnishes a proof of an ability to appreciate it. This possibility is mentioned because it is only fair to find every apology for the Sydney people, and this is the most plausible yet discovered.

CHAINING PRISONERS LIKE DOGS.

Sergeant Saunders, the intelligent officer in charge of the police, was for five years at Mount Browne, and left with the relief camels sent by South Australia.

He has also been two years in Wilcannia. His experience in Broken Hill extends back about fifteen months. One by one he has slowly gathered together for the protection of over 6,000 people a force of four men. He has as a lockup a galvanized-iron building, lined with match-board, measuring 12 feet by 10 feet by 10 feet, in which hole prisoners are chained to the joists like dogs. There are two ringbolts through the floor, and the untried prisoners are manacled by the leg. The police do not because they cannot strictly administer the law. If they attempted to do their duty there are many occasions when they would come in conflict with a crowd 300 or 400 strong of excited men, and of what use are five policemen among so many? The guardians of the peace have, therefore, to wink at fights, and summons the offenders afterwards. Of the twenty-six hotels there are some of an inferior character, but an improved class is now going up, stone, iron, and wood, with from thirty to fifty rooms each, and the Licensing Bench has decided not to grant licences except to houses of superior construction. In connection with the number of the hotels, it should be remembered that many serve the purpose of boarding-houses, which are in greater demand than usual through the number here of single men and of married men without their families. The town is fairly supplied with Magistrates. There are three or four local Justices, but the Police Magistrate is resident at Silverton, and only comes once a week. Mr. Warden Wyman Brown, S.M., is thoroughly conversant with both branches of his work, and is spoken of in the town with the greatest respect. The Police Court or Court of Petty Sessions sits daily, and the Small Debts Court once a fortnight. Judge Backhouse holds a District Court twice a year, and Quarter Sessions for all but capital offences, the nearest place for which would be Hay, about 480 miles distant.

The police force should certainly be doubled; and it is no argument against it to say that with the exception of a somewhat high per centage of drunkenness, a predilection for fighting, and a tendency to the unstinted use of sulphurous language amongst certain classes in the streets, the people are as a whole very law-abiding. Already overworked, the staff is unable to act in regard to offences daily committed, and is certainly unable to meet an emergency.

SANITARY MATTERS.

The police, who have the only power in the town to touch sanitary matters, possess very little control over them. They act under the Police Act, which has a novel procedure. A nuisance is found existing on a man's premises dangerous to health. The police cannot give him notice to abate it, but must lay an information against him. It takes three days before the summons can be heard. Supposing the case to be proved, all the Magistrates can do is to order the nuisance to be abated within seven days; so that by Act of Parliament a dangerous nuisance is allowed to continue unabated for ten days. It is very absurd in a place exposed to so many risks of typhoid fever like this is. But the peculiarity of the law does not end here. If the order is not obeyed there is no penalty provided. The only course open is to issue another summons for disobeying the order, for which offence the penalty is £10. Without a doubt the town ought to be incorporated at once, as a municipality could make stringent by-laws with reference to sanitation, but the chief difficulty in the way is the question whether the mines should be included in the assessment. The chief nuisances are in regard to cesspits. A hole is sunk in the ground 3 or 4 feet deep, and in a great many instances the enclosure is only bagging, the top being quite open. It is not to be wondered at that there is a bad stench in the air. There is no system of cleaning out. Sergeant Saunders has been insisting upon the excavation of holes to a depth of 10 to 12 feet. Rubbish covers the roadway, and beer barrels and merchandise at frequent intervals adorn the foot-paths. An enterprising resident has started scavenging upon the guarantee of several tradesmen, but any such arrangement is at best only a poor substitute for efficient municipal work.

[No. VIII.]

THE EARLY DAYS.

On my making application to a gentleman who was on the field in the early days for information respecting those interesting times he courteously offered to write a sketch for your readers. The following is his account:—

"Controversy has been engendered concerning the actual father of this field, but I am convinced that no man can more justly claim the title than the late 'Paddy Green.' This man many years ago delved upon the Barrier. Men in their wisdom

laughed at him. Others more compassionate but equally incredulous said he had a silver mania engendered by misfortunes upon the great Victorian gold-fields. But Green went on his way unheeding all, and firmly convinced in his own mind that he was on the eve of a great discovery. He knew nothing of chlorides or oxides, and sulphides were to him an unknown quantity; but he did know galena pure and simple when he saw it, and Thackaringa is wonderfully prolific in this precious metal. I believe that the first mine ever worked here was the 'Pioneer.' Green fossicked out from the surface several hundred tons of good ore from this rightly-named claim. But in all his delving he never went 30 feet below the surface. He simply rooted out the rich layers or bands of silver ore. From this district he sent away several lots of ore, some of which never reached its destination. One parcel was jettisoned, several others miscarried through various causes, and I understand that poor Green never lived to see the fulfilment of his splendid dreams. He died in 1880, just as men were beginning to believe that the desolate arid Barrier Ranges contained precious metals worth risking life and health to win. Prior to this period the surrounding country lying midway between Wilcannia and Terowie had an unsavoury name. It was generally looked upon as the haunt of the 'cattle-duffers,' as the notorious cattle thieves were called, and more than one bushranger is supposed to have passed a portion of his career hereabout. I have often conversed with old hands, who invariably told the same story. Only a few of them are alive now.

THE RUSH TO THE FIELD.

"When silver was found at Umerberka Australasia began to grow uneasy. Thousands of men looked eagerly for fresh news. Hundreds came in small parties and scattered themselves over the field. But it was not until 1880 that people began to throng to the new Eldorado. Then a steady stream set in, which has never stopped. In 1883 a tremendous rush set in. Terowie, then the terminus of the South Australian railway line in this direction, was the scene of excitement. Crowds of eager men thronged the streets in strange apparel. Vehicles of every conceivable description passed daily, nay hourly, through its dusty streets. Hill & Co.'s coaches were crowded to excess. Teams full of

diggers' swags pushed on for the great silver fields. Crowds of men placed their 'blueys' upon their backs and tramped off determined to reach the promised land or perish in the effort. From Terowie to Silverton was a fearful sight when the winter set in. Teams were bogged all along the track, and there were sometimes twenty and thirty at one bad patch commonly called a gluepot. Gluepots were wonderfully plentiful on that track. Sometimes as many as fifty horses would be hitched on to a wagon, whips would be at work, plied by brawny arms well up in the business, blasphemy as hot as lava would follow the whips, and shovels and spades would be going on in front of the wheels digging out the loam. Sometimes the wagon would come out, and sometimes it would come in sections, torn asunder by the fearful strain. Then the mail coaches would come creeping along piloted by those princes of the Australian road Nicholas and Wilkinson. Sometimes it would take them nearly a fortnight to get through, and it was a living wonder how they ever got along at all. No man who does not know the back blocks can appreciate the determined pluck and marvellous skill of our mail coach drivers. A drive on a pitch black night through Stephen's Creek, with the flood a banker, a couple of half-broken brutes in the team, and Billy White for a pilot will do more to convince a person than the longest eulogy every written.

SILVERTON.

"On foot or in the saddle, by coach or by team, the diggers reached Silverton at last. Coming, as I did, along the old Umberumberka road a dash is made for the top of the hill. This reached Silverton lay before us as a mass of canvas, stretching in all directions. Iron shanties, looking like big sardine tins, dotted the whole valley. A mighty throng of restless moving humanity of all nations, all colours and all creeds, bustled about—some laughing, some sorrowing, and many cursing, all busy, and each intent on making money somehow. Here was a crowd of Irishmen wanting to 'shout' for everybody or to fight with anybody; there a patient, cute-looking Chinaman or two—soft, insinuating, and progressive, interfering with no one, and scoffed at by all. Behold a group of Germans, fair-faced, half-mad with excitement, talking and gesticulating in the most frantic manner as if they had a world of business to do and no time to

do it in. Englishmen were everywhere strong, resolute, surly, determined, and arrogant; Scotchmen keen, eager, and silent, looking after the main chance, and dealing in everything; and Australians bold, pushing, boastful, generous, and aggressive, keen as razors and hardy as Arabs. Jews were there peddling everything under the sun, and vowing that they lost money over all they sold or bought. Afghans in many coloured raiments lolled about, apparently doing nothing except to smoke. Italians screamed at the top of their voices, and Frenchmen flew about like men distraught, while Brother Jonathan 'guessed,' 'cussed,' and ex-pectorated with characteristic energy, and was ready to wager that things wouldn't be allowed to get so tarnation mixed if 'Uncle Sam' bossed the show. Every one talked at once, and in his own language. Nearly every man wore a coloured shirt, and very few a coat of any description. Beards went unshorn, hair unkempt, and amidst all the hurly-burly I scarcely ever saw a woman. When one did put in an appearance hundreds of eyes were fixed upon her, and ribald tongue grew still. I never knew a woman insulted in the early days. The man who had been foolhardy enough to have done so would have met with a bit of extreme hard luck at the hands of the moleskin crowd with leathern waist straps and long sheathknife attached. Dogs of every breed known to Australasia roamed around—greyhounds, sheepdogs, mongrels, terriers, in fact every sort of canine that knew how to follow a cart and worry a sheep. This was Silverton, the capital of the Barrier, in those days. Afterwards men settled down a little. The prospectors spread out over the surrounding country, and the business people built themselves habitations, and hotels sprang up like magic, Chapels followed. Stores were numerous—drapers, grocers, and general dealers, carpenters, and blacksmiths, assayers, chemists, bakers, and butchers established themselves. Then the fever came along, and finding the place ripe for its purpose carried off the flower of the people. It was a wonderful thing, but not one drunkard went down with the scourge. The victims were all fine strong, steady, young men, and Silverton Cemetery is full of their remains. This was a time which none who were present will ever forget. Day by day miners and mothers, sweethearts and sisters, arrived by coach

to see some loved one, only to find, in most cases, that he had been consigned to the grave. Let Broken Hill take warning, for the sanitary conditions of the place are in a disgraceful condition.

MINING BONANZAS.

"The Pinnacles Mines were in those days spoken of as a wonderful thing, which would soon employ men enough to form a large township, but that dream has not yet been realized. Then the Apollyon claimed for awhile public favour, but this property disappeared from the front rank. Then the mighty Day Dream nearly drove men mad, and a good-sized township sprung into existence, only to fade away like a spring flower. The Poolamacca Mines also claimed to be able to support a separate and independent township. But what is it to-day? Then came the Broken Hill which in size and importance overshadows all the rest combined. Here the visitor sees the promise of an inland city.

ONE OF THE WONDERS OF THE WORLD.

"Taking it for all in all, it is perhaps the most remarkable field ever opened in the whole of Australasia. Hundreds of men have made immense fortunes upon it. Thousands of others have enriched themselves, and many are doing so this present day. The field has had its drawbacks. It has been the cause of ruin morally to many scores of young fellows. Lives have been blighted, characters lost, prospects damned for ever. Drinking, gambling, and debauchery will find a home on every field where men struggle and strain after wealth forgetting all else; and man is not so many removes from the savage in this century when far from pure home influences."

No. IX.

For years and years the land of the setting sun, as the Barrier Ranges country is termed in New South Wales, had been known to squatters, but only as a country for raising cattle for the Adelaide and Melbourne markets, and producing wool for English auctions. To-day it is the scene of many thriving, growing townships, clustering where the roar of furnaces continues day and night, and miners are descending into and ascending out of the wealth-hiding bowels of the earth. It seems to be a disputed point as to who was the first to call attention to the mineral richness of the Barrier

Ranges, which have in the infancy of their development made the haunts of cattle - duffers homes for honest toilers, and converted humble shepherds into influential silver kings. "Paddy Green" is canonised in this connection by some, and others hold in reverence Julius Nickel, who twelve years ago found small veins of galena while sinking a well at Thackaringa for Messrs. Elder, Smith, & Co. It is stated that Nickel, failing to induce his mates to join him, pegged out the ground constituting some of the leading claims now at Thackaringa, and went to Adelaide for capital, predicting to Mr. Smith that the Barrier would be the biggest field in Australia. Meeting with no sympathy, and discouraged by his specimens returning a low percentage, he abandoned silver-mining for a time. John Stokie, a Thackaringa publican, associated with Patrick Green and Louis Garrot, succeeded in raising and shipping 79 tons of galena for England, but it was jettisoned on the voyage, the firm recovering £270 under an insurance policy. Mr. Green, the sleeping partner, died about this time, and work was practically suspended. In 1876 Stokie discovered the Umberumberka. On September 4, 1883, Broken Hill was pegged out by Rasp and party. The Purnamoota silver and the Poolamacca tinfields were started in June, 1884. In October of the same year a sensation was caused by the discovery of chlorides at Broken Hill, which led to the pegging-out of claims to the north and south, all considered, of course, to be on the line of lode.

The Barrier Silver-field brought to light amongst other things the value of chlorides. From the Apollyon, where they were first found, a consignment of ore was shipped to London in 1883, and the consignees refused for months to take delivery of it. It was thickly impregnated with chlorides, and on the value becoming known it realized over £330 per ton. In the Broken Hill Mine the occurrence of kaolin carrying silver under the conditions found there is one of several interesting geological facts furnished in the district. Indeed the conditions of the field are in many respects so new that mining in certain phases may be considered to be yet somewhat of an experimental nature.

THE BROKEN HILL PROPRIETARY COMPANY.

In September, 1883, Mr. Charles Rasp,

of Medindie. then a boundary rider on Mount Gipps station, was mustering sheep near Broken Hill, one of the peaks of the Barrier, and was struck by its suggestive formation. The southern portion of the hill, which runs north-east and south-west for between 1 and 2 miles, presents the appearance of a very jagged razor, so fine seems the edge, and so peculiar the indications. From the bluff which marks the southern boundary of Block 14 to a similar bluff overlooking Block 16 in the flat and the Junction mine on an eminence to the left, the hill is still rugged though much less so than on the northern portion. Mr. Rasp discussed with Mr. George McCulloch, manager and part owner of the station, the promising look of the hill for prospecting, and it was decided to peg it out in the possibility of discovering a tin lode. Wilyu-wilyu-yong, the aboriginal name for Broken Hill, was thereupon applied for in the names of Messrs. George McCulloch, G. A. Lind, and George Urquhart, seven blocks, or a total of 2 miles being secured on the line of lode. A Syndicate was then formed, Messrs. G. McCulloch, Phillip Charley, Lind, David James, G. Urquhart, C. Rasp, and James Poole holding shares in equal proportions in the Broken Hill Mining Company. Prospecting was carried on for several months, but the success appears to have been so doubtful that Messrs. Lind and Urquhart, storekeeper and overseer on Mount Gipps Station, sold out. The Syndicate was merged into a Company on August 12, 1883, under the title of the Broken Hill Proprietary Company, Limited, the capital consisting of 16,000 shares, 2,000 being issued to the public at £9 each, paid up to £19, while the remaining 14,000, also paid up to £19, were retained by fourteen proprietors, namely:—Messrs. W. Jamieson, W. C. Daglish, Solomon Wiseman, C. Rasp, K. E. Brodribb, Bowes Kelly, E. Thomson, David James, W. R. Wilson, James Poole, A. W. Cox, G. McCulloch, and P. Charley.

Innumerable are the stories told of golden opportunities missed of buying a fourteenth or lesser interest in the great mine for what is now regarded as a mere song, but was then considered to be an exorbitant price for an unproved property. How far all of these anecdotes are correct it is impossible to say, for a man likes, next to being considered rich, to be thought of as one who could have

been rich if he had chosen. It is evident, however, from the sales that were made, and the low percentage of ore at first obtained, that the majority did not suspect that hill to be one of the richest caskets of silver to be found in the world. But under the able management of Mr. S. R. Wilson, Mr. Patton's predecessor, the hidden wealth was revealed in such abundance that it was found necessary to adopt a policy of segregating certain blocks because they could not be all advantageously worked by one Company during the currency of the 20 years lease. Block 14 has been made the subject of a Company, each of the 16,000 shareholders in the Proprietary Company being allotted 6 in the new Company which retained 4,000. The total 100,000 shares at £5 each, gave the value put upon the property as £500,000; but as the shares are now being sold at nearly trelce their nominal sum, the value set upon it in the market is not far short of £1,500,000. Blocks 15 and 16 have been, as is well known, floated in the London Market under the title of the British Broken Hill Company, the value affixed to the property being £1,200,000. Each shareholder in the Proprietary received five fully paid-up £5 shares in the British and a cash bonus of which £10 has been paid, and 160,000 shares were offered to the public. The shares are quoted at a slight premium. Proprietary shares have gone above £400, but taking that amount as the market value Blocks 13 to 10 are held to be worth £6,400,000, and the whole the blocks therefore at over £9,000,000. A little more than three years ago Mr. McCulloch, the Manager of the Mount Gipp's Station, played Mr. Cox, an employé on the station, a game of euchre to decide whether the latter should give the former £150 or £120 for a fourteenth share in the Broken Hill Mines then being prospected. Mr. Cox won. The fourteenth of £9,000,000 is over £640,000. With what strange emotions would the game have been played had either known the value of the stake!

No doubt some mistakes have been made in the past, but considering the entirely new circumstances and special difficulties which have had to be met, the development of the Broken Hill mine is a thing to be proud of. The Government Geologist of New South Wales (Mr. Wilkinson) said in a lecture in Adelaide in September last:—"The enterprise of the Broken Hill Company cannot be too

highly commended, not only with regard to the introduction of efficient smelting appliances, but in the appointment of experienced and competent men as general and mining managers and metallurgists. Such judicious management must ensure success where success is to be attained. I here make allusion to it, for not only upon this field but also throughout this and other colonies, will it serve as an example for mining enterprise, especially where the development of new classes of mining is concerned." To be fully sensible of the enterprise of the Company one needs to inspect the mine, for the visitor is there not only impressed that it is a magnificent property but that in management it has claims to be considered a model mine.

Broken Hill has not yet attained to many things. It has not a single politician, or a prominent philanthropist; has no institute or Savings Bank; no public buildings worthy of the name, or requisites such as gas, water-works, street - fountains, telephones, decent postal and telegraph service, and adequate police protection; and no local government, or sufficiently strong public opinion to correct abuses. But these are matters which time will rectify, for Broken Hill has resources. They commence with the scrubby slope of the broken, dark ironstone-capped hill, where now the furnaces never cease to glow and the thud of the machinery is ever heard, but their full extent it is not possible to see now so early in the dawn of the prosperity of the Barrier Silver-field.

[No. X.]

THE BROKEN HILL PROPRIETARY COMPANY (CONTINUED).

The Township of Willyama is laid out in wide streets at right angles to the four compass points, as in Adelaide. The main mile thoroughfare, Argent-street, is therefore not quite parallel with Broken Hill, which flanks it a few hundred yards to the south. Standing in the balcony of Elliott's Hotel, which is halfway down Argent-street, the visitor faces the mine. Right opposite is Block 13, on which is the old smelting plant, with its slag heap running down the slope of the hill. To the right and lower down the slope are the Company's offices, and higher up still, looking to the right or in a southerly direction, are the shafts of Block 12, and a little lower the new smelting plant is being erected. Beyond this and below

Block 11 is the diamond-drill of the Underlay Company, as to the work of which very little is generally known. From Block 10 the hill descends to a point which seems to be in a straight line with the railway. The point conceals from view the road to the Broken Hill Central mine, where the Broken Hill lode has been found to be of a rich character. Coming back and now looking slightly to the left is a prominent peak, on the north side of which is the boundary of Block 14. Near by is Block 14 Company's offices, and in the dip of the hill the engine - shaft, while on the other side commanding an extensive flat is the smelting machinery with the stack rising high above the top of the hill. Further to the left, or in the northerly direction, is the undulating form of the hill in Block 15. Block 16 is hidden in the flat beyond, the Junction poppets standing out on the bluff in the distance to the left of it. Looking up Argent-street is the Round Hill, at the other side of which is the township of that name, older than Willyama, and having a population of 300. The sides of Broken Hill are covered with mulga scrub and a strong undergrowth, and the top capped with manganic ironstone.

The public have frequently heard of the untold wealth represented in the Proprietary Company's property, and of the beauty and richness of the ores as they may be seen in the subterranean passages, but it is only given to those privileged to wander in the internal mazes of the mine to be struck with amazement and admiration of the so far matchless argenti-ferous Broken Hill lode. The General Manager (Mr. Patton)—than whom there is none better able—asked to compare it with the Comstock lode of Nevada, said —“The Comstock is a vein which runs from 300 to 600 feet in width, and the ore is in bodies, and not in what here would be called shoots. By bodies I mean that the ore lies in veins like raisins in a pudding, occurring accidentally, and with no particular rule to find them. Lying in bodies in that way, when one body is worked out, you cannot depend upon finding another to keep up the supply of ore. Here the ore appears to lie in shoots or streaks, which you can follow. It is not so bunchy as at Comstock. The Broken Hill mines have been so recently opened that we have not had time to go down very deep, for the supplies of ore near the surface are so enormous that there is no necessity to do so. At the

Comstock there was ore on the surface in the croppings, but down to a depth of 2,000 feet it increased in value as we went down. The ores, too, were of a different character to the Broken Hill ores. These contain no gold and required a different treatment."

The most important feature of late in connection with the Company's property is the discovery of rich ore in the Broken Hill Central Mine, as it bears upon the value of the southern blocks 11 and 10. From the latter block it receives the lode, which evidently passes through the next three blocks of the South Company, for it has been found in the South Extended, a mile further to the south of Block 10. There has been so much work going on in putting up new machinery at the Proprietary Company's Blocks 12 and 13 that the General Manager has not had time to go into the question of developing 10 and 11. On the slope of the hill facing the township, Mr. Patton is erecting concentrating or ore-dressing machinery. The plant is on the way from America. Briefly, it may be described as follows:—The ore is separated into different sizes, the silica or quartz, which is detrimental to smelting, is dressed out and passes away as tailings. The new smelter will be started some time this month. Nearly 900 men and boys altogether are employed on the mine. About 150 of these are engaged in handpicking ores, which work will be done by the new ore-dressing machinery.

Coming to the underground operations, six shafts are being worked, but nothing is being done below water level. There is not any too much water, although sufficient is obtained to answer present requirements. It is expected that more will be obtained as the sinking progresses. For this purpose the 6-inch pumping plant at Jamieson's shaft is being changed for a 9-inch with a longer stroke. There are 600 hands in the mining department. Of that number about 250 are underground. Owing to the easy nature of the ground the mine takes more timber men and less miners than it otherwise would. About twenty-five timber men are employed in securing the ground.

All the work done to date has been practically prospecting, though it is unusual for a mine to pay its expenses and dividends in that stage of its development as the Broken Hill has done. When all the smelters are in operation a fresh departure in its history will be taken, as active mining may then be said to begin.

In Brodribb's Shaft the iron ore giving place to carbonate of lead points to the permanency of the lode.

A large portion of the expenditure now is in developmental works and permanent improvements. In a short time the ore will be turned into bullion at a less cost per ton than is now being done. A survey of a line has been made to connect the mines with the Broken Hill Tramway, the expenses being equitably divided between the three Companies.

An immense amount of machinery for the Company is being constructed in the colonies instead of being imported from England and America. Plans and specifications of what is wanted are submitted to colonial manufacturers before any order is sent out, because it is the desire of the Company to spend their money here. Of course there are some patented articles needed which cannot be made here without the right to do so.

The management is entrusted to Mr. Patton, who arrived a few months ago with the highest reputation from the premier mine on the Comstock lode. During his charge at Broken Hill he has effected several improvements, and is held in the greatest respect in the district, no less for his amiability and unassuming manner than for his undoubted ability. Captain Piper, the Mining Manager, was associated with the mine before it paid dividends, and the testimony to his unremitting care for the property is to be seen in the able way in which the underground operations have been carried out. Of Mr. Schlapp, the metallurgist, there is only one opinion as to the great value of his services to the Company. To Mr. Thomas, the underground boss, visitors are indebted for the entertaining explanations he furnishes of the scenes below.

UNDERGROUND WORKS.

PATTERSON'S SHAFT.

Although one of the last opened Patterson's Shaft is one of the principal shafts of the mine owing to its capacity through its central position for drainage purposes. It is situated on Block 12, and sunk on the east side of the vein in the footwall country. Thirteen feet long, 5 feet wide in the clear, it is down to 170 feet. The ground is favourable for sinking, nine men being equal to displacing 12 to 14 feet per week. It is close timbered with substantial hardwood, centred and divided with ladder-road, fixed at an easy angle. Recently at the 132-foot level a donkey-engine has been fixed for the con-

venience of the shift men. Sinking has been again resumed, and will be carried on even faster than previously. Pumping and winding machinery will be soon on the ground and put into position.

The surface outcrop near the shaft is of great height and width, and yielding immense bodies of silicious iron ore, some of which assays up to 70 oz. of silver to the ton. There are splendid bands running through this outcrop which gives iron flux of a superior character. Thousands of tons of ore has been removed from this part, and thousands still remain in sight.

MCCULLOCH'S SHAFT.

Turning to the north on Block 13 one finds the second important shaft, McCulloch's, named after one of the original fourteen shareholders, who was then manager of Mount Gipps Station. Its importance is derived from the value of the 216-foot level, which was formerly the main tunnel, the output of lead ore equalling 100 tons a day. The shaft was sunk in the hanging-wall of the country, and touched the lode 20 feet above the 216-foot level. A crosscut was put into the east through the lode, which proved to be about 120 feet wide. Of this 100 feet was of a highly payable character, yielding carbonate of lead and chloride of silver. Like fingers of the hand spread out three drives open to the south, No. 1 extending about 500 feet, No. 2, 700 feet, and No. 3, 200 feet, and at distances of about 79 feet apart cross drives were made to test the width and quality of the lode, which is thereby cut up into square blocks. Here the lode, which averages fully 80 feet in width, producing ore of over 30 oz. to the ton and carbonate of lead going 40 per cent., presents spectacular effects that seize upon the imagination of visitors.

There are drives at the 150-foot level north and south. The south drive passes through iron gossan of a very friable nature, producing silver in payable quantities. Indeed some of it went between 200 and 300 oz. The fine stuff is being treated, but large quantities are being stacked for treatment by the new ore-dressing machinery. Some short distance from the shaft north the lead shoot comes on. From this large quantities of lead have been raised. At convenient distances winzes and passes have been sunk for the perfect ventilation of the mine.

Owing to the heavy loose character of the matter large quantities of massive timber are fixed to keep the levels open and the lode stuff in position.

RASP'S SHAFT.

Rasp's Shaft was not only the first sunk, but the one which gave the public an idea of the wealth of the mine, for even the proprietors had some doubt as to its value until they struck the rich ore at the 212-foot level about two years ago. The shaft is also on Block 13, sunk 278 feet. The most important level, however, is the 212-foot, extending north and south. The latter is connected with McCulloch's Shaft. In this drive rich ore has been obtained, consisting of carbonate of lead and iron ore, which carries a high percentage of silver. Stopping has been proceeded with in the level. Three winzes have been sunk to a depth of about 60 feet, and in one extraordinarily rich ore was got, some of which assayed up to 1,500 oz. per ton. Here again are found some pretty effects—chlorides of silver in masses like coral or filigree work, and lead crystals pure and white, contrasting with the earthy gossan intermixing with it and the chlorides, while some ironstone stuff has the lustre and rainbow tints of shot silk.

At the 150-foot level the ground has been blocked out and timbered into position preparatory to begin stopping. When the dressing plant is in working order large quantities of lead and iron ore will be extracted.

BRODRIBB'S SHAFT.

This shaft has some interesting features. It is sunk on Block 12, the southernmost block opened up, on what is known as the iron ore shoot, which is situated where Mr. Jamieson's blackboy, Harry Campbell, found the first chlorides in the ironstone, and where shortly after a rich patch, assaying up to 1,000 oz. per ton, was discovered. Campbell, who is now an identity of the township, was told what the chloride was, and he found it. He has also the distinction of finding chlorides at the Bonanza two years ago. He is regarded by his tribe as a superior being, and he appears willing to well play the part of one to them.

The shaft is sunk to the 208-foot level. There is a double-caged road fixed and a winding plant at work. There are three levels in the shaft—66 feet, 132 feet, and 208 feet. From the 66 feet is got the fluxing ore, which is principally manganic iron carrying silver in sufficient quantities to pay for the working of the same. At the 132 feet it changes into silicious iron ore, carrying a larger quantity of silica with silver freely distributed. Some of

this ore assayed 200 ounces to the ton. At the 208-foot level the iron ore gives place to carbonate of lead, which is now being worked, and proves to be of a highly payable character.

The principal features of the shaft, apart from its historical interest, relate to the serviceable flux, the rich silicious ore which helps to maintain the weekly yields, and a remarkable circumstance which will be watched with considerable interest, namely, the iron ore giving place to carbonate of lead, which points to the permanency of the lode.

As the water is approached the ore shows signs of changing into the sulphide form. The change is so gradual that one can scarcely tell where the one begins or the other ends. A boulder of ore has been preserved as a rare specimen showing a shell of sulphides filled with a kernel of green carbonate of copper and carbonate of lead crystals, and the whole surrounded by carbonate of lead.

JAMIESON'S SHAFT.

Jamieson's Shaft, which is named after the first general manager of the Company, is sunk on Block 12 to a depth of 40 feet below the 208-foot level. The shaft is divided into three compartments, two for winding and one for pumping. A 6-inch Cornish pump is at work, but it is found to be inadequate to contend with the flow of water. A more powerful pump is now on the ground, and it will be put into position shortly, which will facilitate the sinking of the shaft. It is being sunk in the lode which is yielding silicious ore assaying 80 oz. of silver to the ton.

The levels, namely, 208, 142, and 76 have been extended through highly payable ground, and are connected with Knox's, which is the southernmost shaft.

KNOX'S SHAFT.

In the vicinity of this southernmost shaft most of the rich kaolin ore is found from the surface to the 208-foot level. In this shaft the lode is at one part 190 feet in width, the ore occurring in rich streaks or bodies running through the vein material. The peculiarity in this shaft is the exposure of kaolin and ironstone. When the kaolin was first seen it was suggested that it was a dyke running across the lode, but it was found to be a portion of the lode as it was enclosed by the same wallrock as other portions of the vein. The occurrence of kaolin carrying silver under these conditions is an interesting geological fact.

[No. XI.]

THE BROKEN HILL PROPRIETARY COMPANY (CONTINUED).

BLOCKS 10 AND 11.

Beyond Knox's Shaft the Company have two 40-acre blocks, which may be as valuable as those already described. There is the same outcrop of manganese iron running through No. 11 and partly through No. 10, and the discovery of the rich ore in the Central, which joins No. 10 on the east, would indicate the continuance of the ore to the moresouthern portion of the Company's property. In the event of another Company being formed to work Blocks 10 and 11, it is probable that the northern half of Block 11 will be retained by the Proprietary Company for the ironstone in it for flux.

THE METALLURGICAL DEPARTMENT.

ASSAYING.

In custom smelting the ore is paid for on the assay value, and all the ores are then mixed together. Where the mine is smelting its own ore, as here, it is not so important to get the exact value. It is sufficient to get a general idea. Samples are taken from the storage bins of the mines as the ore is taken to the smelting floors. These samples are assayed every morning. Then another sample is taken on the smelting floors as the ore is weighed out to the smelter, which is also assayed every morning, and recorded. This is done to give a general idea as to the proportions to be used in smelting, and of course only with a view to determine the value of the ore for silver and lead. For making up the charges of the furnace the department must know what else the ore contains, and this is done by wet analysis. A chemical analysis is made of whatever ore is used. As, however, the smelting relates to only the one mine, after the analyses have been made for a while it is known what the ore will run without analysing it. Every morning a sample of the slag is taken for analysis, and another sample for assay for lead and silver. The analysis tells the chemical composition of the slag, and if it needs any change it is made. There are a great many difficulties in working the furnaces to the best advantage, and the composition of the slag gives a certain criterion to go by. The assay staff does the work for the assaying and smelting departments. In the office there are three assayers and two boys.

SMELTING.

Starting up the furnaces, a wood fire is put in for twelve hours to warm up the bricks. When it gets hot bullion is melted down in sufficient quantity to fill up the crucible. After that more wood is put in, above it coke and slag, and on the top of that the charge, consisting of one layer of ore, a second of coke, a third of ore again, and so on until the furnace is full. Then the blast is turned on. The furnace from this time is kept filled. As the charge melts, and the valuable product settles down and is drawn off at the bottom, the furnace is filled by feeding it in proper order with layers of ore and coke. That goes on night and day without interruption for from three months to two years with good clean ore. If the composition of the slag is correct, all the silver and lead contained in the ore will be reduced to a melted state and form a base bullion. That being heavier than the slag settles to the bottom, and is drawn off at a lower level than the opening at which the slag is drawn off. Some slag is used over again. Even if perfectly clean it makes the furnace run even, and really does not cost anything to smelt, except for rehandling. The only thing which has to be bought is limestone, the iron flux being on the mine.

BULLION.

The bullion is cast into pigs weighing about 90 lb. Each bar of that bullion is chipped by a chisel furnishing samples of half an ounce each. The chips from 100 bars are melted into a small bar and assayed, giving the average value of the 100 bars, and each of them is stamped with a number and shipped in that way. Of course the buyers resample the bullion. In England the silver and lead are separated. It would not pay to do that here, because the lead has to go to England for a market. In shipping lead and silver together in base bullion only a low freight is incurred; where separated a high freight would be charged for silver, while the lead would be but very little cheaper. The increased freight on silver is on account of the increased risk in carrying it.

THE SMELTING PLANT.

The old plant consists of five 30-ton furnaces on the waterjacket principle and the new plant of three 80-ton furnaces. When Mr. Schlapp, the metallurgist, took charge in April last there were four furnaces erected and the fifth was partly up. Those furnaces were built by Mr. Lamont originally. They ran two for

three months, and then they were turned over to the Company, and Mr. Conway ran them from that time till Mr. Schlapp took charge. Prior to his coming the furnaces were never all run for any length of time, but since then four have been run part and five the rest of the time. There was a period when the management was bothered for water considerably, and the machinery was too weak. The machinery in the old plant will have to be overhauled as soon as the new furnaces are started, when some changes will be made, probably taking six weeks.

The staff includes 1 assistant metallurgist, 6 shift bosses, and about 130 men, with 10 knockabout hands.

THE FUTURE OUTPUT.

With both plants at work the output should be 100,000 oz. a week. The average ore will not be so high as now until the ore-dressing machinery is running. Then the average value of ore smelted will be higher because of the removal of a great deal of the gangue which has now to be smelted, and of course make the dressed ore of a higher grade than the ore from the mine.

NATURE OF THE ORES.

The ores are similar to the carbonate ores in the Western States of America—in fact, they are almost identical with the carbonate ores of the Leadville district of Colorado. There is one good feature about them—that they are almost perfectly free from zinc; there is so little of it in comparison with the whole that it plays no part at all. Some ores containing zinc have been found in the lowest levels, but there has been no prospecting done to determine their extent. If they should be found in quantity it will necessitate no alteration in the machinery, but the treatment will be more expensive.

LEAD-POISONING.

One thing that the mining department prides itself upon is the ventilation of the mine. A few months ago, before it was thoroughly opened up, the number of men affected by the fine particles of lead continually floating about was rather large, but since then there has been a gratifying decrease. As the obnoxious particles can be absorbed through the pores of the skin as well as inhaled, cleanliness is a virtue of peculiar value to the miners. It has been observed that heavy smokers are more susceptible of lead-poisoning than those who abstain from it in the mines. In cutting up tobacco the lead is rubbed into it, and the poison

inhaled with every puff, so that the weed, commonly so soothing, becomes a dangerous irritant. Smoking is prohibited during working hours in the mine. Dr. Seabrook, the medical attendant at the mines, advises as a good preventive for the poisoning the use of milk and other fatty substances. Opportunities for bathing will be given the men as soon as water is obtained in sufficient quantities to run it off cool; the bathing-house is already erected. To reduce the risks to a minimum the men are changed fortnightly, so that one who works two weeks in the lead shoot will next take two weeks in the ironstone or kaolin, where there is no lead.

Notwithstanding the heat of the furnaces and the climate there has been less trouble this summer with the smelting men than was looked for. Very few men have gone away on account of the lead fumes. The fumes affect different constitutions differently.

VALUE OF "BROKENS."

What are "Brokens" worth? Probably no answer could be given which would meet with universal approval. It would not appear less absurd now to say they will yet fetch £1,000 apiece than it would have appeared a year ago to say that they would fetch £400, and there was a greater outcry as to the extravagance of giving £40 a share two or three years ago than of ten times that amount to-day. Still there must be some principles to guide the investing public. It is not merely that "the value of a thing is what it will bring" in a booming market, but what it will return as an investment. The question of what is a fair return depends, of course, upon the nature of the investment. It is admitted on all hands that there are certain risks in mining investments which justify a higher rate of interest than might be looked for from other sources. There seems to be a consensus of opinion that ordinarily the minimum return in mining should be 20 per cent., for nowhere as there does the unexpected more usually happen. It is therefore as against the contingency of the mine or the market giving way or of innumerable other accidents, that the return is required to be large enough to include what is practically an Insurance Fund for the possible loss of the capital. It is, however, urged that the Broken Hill Mine is not an ordinary case, owing to the enormous visible

supplies, and that therefore a 12 per cent. return would be a good rate of interest. There is one feature that may be mentioned here. The leases from the Government of New South Wales have only seventeen years to run, and there is no certainty as to the terms on which a renewal may be granted. Strangely enough there seems to be neither precedent nor provision in the matter, and the only guide to help the Company is the action of the South Australian Government in renewing the Moonta leases on the same terms as before. It is possible that the Government of New South Wales may require the payment of a higher rent and royalty, but the probability is that the Government will do nothing to inflict a serious injury on a concern conferring great benefits on the capitalist and the labourer alike. Assuming 12 per cent. to be an ample interest, the price for a share at the present rate of dividend (£1 10s. a month) is limited to £150; but in a very short time, when the new and old smelters are in full work, it is expected that the dividend will be doubled, or equivalent to 400 per cent. on the amount paid on the original shares. Obviously £300 will be then the price; but it should be remembered that there are special dividends to come in respect to the British Blocks and some shares in the proposed Block 10 Company, which would go a long way to bring the price up to £400. It is clear that prices are now speculative, and in this connection account is taken of a probable vigorous policy of development in regard to Block 10, which will further increase the dividend-paying power of the Proprietary Company. After all, those who buy and sell must be their own judges as to what the shares are worth to them; but it may be pointed out that nothing is more inimical to the interests of judicious management than an extreme price of shares, because a feverish pressure is applied to work the property for immediate profits and not for the general and future good.

There is perhaps no other mine in the world which has so much ore in sight. Hitherto no real stopping or quarrying out of the lode stuff has been done, the expenses and dividends having been paid out of the material taken from the tunnels necessary to begin active mining, and in this fact the property is unique. Though immense quantities of ore have been taken out the whole is but an insignificant portion to what remains, and men

speaking confidently that the supply will not be exhausted during the lives of our grandchildren. Certainly there are indications that the lode is permanent at a great depth, and that the mine has a long life before it.

UNCERTAINTIES IN MINING.

The uncertainties in mining receive an illustration in a dispute as to how far the lode passes through Block 10. For some time past it has been generally understood that it passed halfway through it, and that the Broken Hill Central Mine only got a small portion of it; but recently the Manager of the latter mine has controverted the position, insisting that the Central block got the major and Block 10 the minor portion. In order to impress the public with the fact Mr. Thomas, Mining Surveyor, who, by-the-way, prepared under Captain Piper the plan showing the lode as contended for by the Proprietary Company, has been engaged to prepare another plan showing it as contended for by the Central Company. I notice by the local paper that the results of his survey are that the length of the main chloride lode is 1,125 feet, that of the eastern lode 1,375 feet, and the western lode 1,000 feet upon the Central property, while the length of the lode upon Block 10 is 200 feet. This reduces the length of lode generally believed to be indicated on Block 10 by some 300 feet, and if correct must materially affect the prospects as to floating a Company to take over Block 10 at £1,000,000. It may, of course, be urged that the business of determining the existence of the lode does not belong to the Surveyor but to the Mining Manager, who gives directions as to recording the position of what he believes to be the lode. Neither with this nor with the matter of who is in the right on the main question is any opinion now expressed, but the purpose is simply to show by this dispute, which may prove to be of a serious kind, the well-known fact that there are uncertainties in mining, even with the best of properties and the aid of the highest talent. Perhaps no nearer and more recent illustration could better enforce the argument for preserving a margin in all mining returns as against risks incidental to all mining properties.

DISTRIBUTION OF WEALTH.

The widespread benefits of a good mine are clearly seen in connection with the Broken Hill Proprietary Company's pro-

perty. During the last half-year no less than £53,000 was spent upon wages, salaries, and contracts at the mine; while nearly an equal sum was spent upon coke, limestone, and sundry smelting expenses. The other items in the working account will increase the idea as to the stimulus given to trade by a large mine:—Railway freight, cartage, and insurance on bullion, £26,504; firewood, £3,479; mine timber, £5,029; stores, £6,475; horsefeed, £504; sundry freights and carting, £2,462; incidental expenses, £502; stationery, printing, and advertising, £244; telegrams and caelegrams, £221; postages, £73; duty and commission, £2,009. The last item suggests with two others—proportion of royalty exemption £1,500 and rents of leases £236—that the State also shares in the advantages. Then we have the fact that during the same period £96,000 was distributed in dividends. The net profit being made is at the rate of a quarter of a million sterling annually, and it will shortly be greatly increased if not quite doubled. Of all this expenditure and profit what proportion benefits South Australia? Nearly half the shareholders claim Adelaide as their capital, orders for machinery have been fairly given to our manufacturers, and the bulk of the wages absorbing trade has been done with South Australia, while our forests have supplied quantities of timber and our railways earned large freights. Our forests may be called upon to furnish far greater supplies to carry out Mr. Patton's experiment of timbering the quarried parts of the mine. Altogether South Australia has nothing to complain of in connection with the distribution of the wealth of the mine, and when it is considered that within three or four years the present expenditure and profit will, in all probability, represent no more than a fourth of that in relation to mines identified with the great Broken Hill lode, the prospect must be acknowledged to be extremely cheering.

No. XII.

BROKEN HILL BLOCK 14 COMPANY.

The policy of the Broken Hill Proprietary Company in segregating blocks for the immediate and economical development of the whole of the magnificent property seems to meet with general approval, as there appears to be no more reason that reservoirs of wealth should be knowingly locked up for indefinite periods than that the management should be burdened by an unnecessarily exten-

sive undertaking. Not only has the policy been favourably received by the fortunate shareholders in the parent Company, but it has not been unpopular with the public who were admitted to a participation in the profits of the finest silver mine of Australia. Block 14 Company represents the first practical adoption of this policy.

Probably most people know that Block 14 is situated to the north of Blocks 13 and 12, which are being worked by the Proprietary Company with astonishing results. There is no doubt whatever that through Block 14 passes the Broken Hill lode, which on account of its size and richness in the adjoining blocks creates an overpowering impression on those who traverse the miles of tunnels. Whether that portion of the lode in Block 14 is as full in body and rich in substance as that in Blocks 12 and 13 remains to be proved; and though there is unquestionable evidence of the existence of payable ore, investors should remember that the extent of its profitableness is a matter yet undetermined. A distinct line of demarcation should be drawn between good properties and good dividend-paying ones. A mine may be good, and yet not good dividend-paying, simply because it is weighed with a disproportionate capital, in which is represented only a small portion for developmental expenses and an extravagant sum for promoters' profits. It is, however, generally regarded that this is not the case with Block 14 Mine, which will pay a good dividend—probably more than 20 per cent. in respect to its capital of £500,000. But a mine of this character may cease to be a remunerative investment for those who can only purchase when the market price of shares is so high as to reduce the returns to an inadequate rate of interest. It is in this way that it may be questioned whether purchases of Blocks at £15 apiece can be justified until at least the property has been further proved. As a pure speculation, however, there is nothing to be said as to the matter of prices, for then the buyer tempts Fortune to favour or frown on him, as the humour may take the fickle jade.

After the Company have paid for the works in progress they will have, with the shares they hold in reserve, about £20,000 in hand. It is estimated that the cost of raising the ore will be about 25s. per ton, and of smelting 34s. The former price includes the cost of timbering, manage-

ment, and every incidental matter. In order to be within the mark let it be assumed that 1,500 tons will be smelted weekly, and that the ore is of a very low average—24 oz., or nearly half that of the Proprietary Company's. The return will then be—For silver, at 3s. 8d. per ounce, £5,280; and for lead, 300 tons at £4 per ton net, £1,200, or £6,480. This will be equal to 86s. 4d. per ton; and, subtracting 59s. per ton for raising and smelting, leaves 27s. 4d. per ton profit, or sufficient to pay a 20 per cent. dividend. A more sanguine estimate is that a dividend of 2s. per month will begin in about four or five months' time.

Thanks to the experienced management of Mr. S. R. Wilson, a great deal of substantial work has been ably done during the five months the operations have been in active progress. By the end of April the first-class machinery on the ground will be in position and mining begun. The principle of management has been—accepting the existence of the ore as beyond all dispute—to make preparations for mining in order to save a double handling of ore stuff. Hence Mr. Wilson has gone to the levels, cut flats, and got ready for driving; so that immediately the hoisting gear is ready an abundance of ore can be brought to the surface from the opening out of the lode. As in Blocks 12 and 13, he expects that long before what is known as active mining is undertaken the property will pay dividends. With the raising of ore will cease, it is believed, a large expenditure which has been going on for plant and permanent improvements, including smelters; but the nature of the ore must render it necessary to get concentrating or ore-dressing machinery. Probably 1,200 tons of ore a week will be smelted with the two 80-ton furnaces, but with ore-dressing machinery 1,500 tons can be treated. Considering that the machinery, which will only cost £3,000, will make a material difference in results, it is surprising that it has not been ordered. Every day that the order is delayed must involve an appreciable diminution in the dividend-paying power of the property.

In connection with the mining operations there are two interesting facts. In sinking the South Shaft a piece of "horse" country occurred on the plat about 9 feet wide and perfectly clear. The men drove 21 feet to the east, and 31 ft. 6 in. to the west, both in ore, but in the west there is still no sign of wall. In going down on the other side of the

hill for foundations for the chimney stack chlorides were found, and the site had to be removed further to the east.

Arrangements have been made for the construction of a tramway, which leaving the railway goes past Jamieson's Shaft on Block 12, runs up between the new and old smelting plants of the Proprietary Company, switches off to the main shaft on Block 14, and passes along to the back of the smelting works on the east of the hill, the main line continuing on through the British Proprietary Company's blocks on the west side. A bridge is necessary for the tramway where it must cross a gully in Block 11 in going up to Jamieson's Shaft. Though actually on the Proprietary Company's property the construction of the bridge will be borne by all the Companies, but otherwise each will do their own work on their own ground. The total cost will be about £10,000. The Silverton Tramway Company will perform the shunting with an engine to be expressly kept for the purpose. The laying down of the line, which has been surveyed by Mr. Woolley and is to be completed under his supervision, will be an immense saving in the carriage of limestone, coke, ironstone, bullion, &c. Limestone, for instance, costs about 12s. a ton for bullock haulage, and the railway will do it for about 3s. The lessening of the expense of the early days is great. Coke cost £13 a ton; for fifteen months it averaged £10. Now it is £6, and shortly it will be further reduced.

The Directors of the Company are Messrs. Patterson, McGregor, Brodribb, Kelly, W. A. Horn, and McBride, and the Secretary is Mr. W. R. Knox, of Melbourne. Mr. Wilson, the Manager, was in charge of the Broken Hill Proprietary Company's property until Mr. Patton arrived to take it. Considering the unique difficulties that had to be contended with there—the new features of silver-mining at the Barrier, the cost of carriage, and the necessarily experimental character of much of the work—no greater testimony could be given to Mr. Wilson's ability than the general approval Mr. Patton has accorded to his plans and operations. Although very much delayed in the erection of the machinery through various outside causes, Mr. Wilson has pushed on the operations on Block 14 with the greatest possible expedition. Mr. Greenway, the metallurgist, who has just arrived from Sheffield, has had a large experience in treating mixed ores. In Mr. Giles, the

Mining Manager, the Company have an intelligent and zealous overseer. There are 120 men employed including contractors, and it is estimated that when the mine is in full work the number will be increased to nearly 600.

UNDERGROUND WORKS.

From the Company's tunnel at the back of the ridge driving has been done to the extent of 264 feet towards the South Shaft at the 142-foot level, the plat of which is in horse country. This shaft is 7 feet by 4 feet, and divided into winding and footwall compartments.

About the centre of the block is the engine-shaft, 13 feet by 5 feet, divided into three compartments—two windings and one timber. In this shaft, which is down 273 feet, a plat has been made at the 200-feet, all in footwall country. Elegant iron poppet heads distinguish this shaft from others in the district. The ore is of precisely the same class as that found in McCulloch's Shaft.

The underlay shaft is down 30 feet, and the footwall has just been struck. Near by is where in sinking for the flue chlorides were struck. The site is being devoted to mining. It is extremely rich in lead.

The North Shaft is 214 feet deep. It was opened out at the 114-foot, and a drive made 30 feet to the east, ore all the way. The shaft was next sunk 100 feet deeper, and a temporary plat made. A drive was taken 25 feet to the west, where the lode were struck. Then the men were driven out by the water, which rose from 8 to 9 feet, and could not be kept out with the appliances at hand. Since then timbering the shaft has been proceeded with from the 114-foot level to prepare for work when the machinery was ready to cope with the water.

MACHINERY.

The machinery, which is in a forward state, will consist of a 200-horsepower engine by Fowler, 169 ditto compound engine by Hornsby for the blowers, and a 200 ditto ditto by Lindsay, of Port Adelaide, for a pumping plant. The pumps are two 9-inch plungers and a 12-inch drawing lift made by Fulton & Co., of Kilkenny. There are also on the spot two 80-ton furnaces. Besides, there is a 40-horsepower engine in the middle of the claim for a somewhat novel purpose. From a wheel on the shaft of the engine will be taken 6-wire cables which may be driven both ways. These endless cables will work three shafts by one way and three by the

other, or more as needed. The man at brace will have brakes to work a face friction clutch. He just presses that clutch and the drum revolves, and begins winding up from the shafts. When he gets the cage to surface, he frees the brake and lands it. This application of the cable system, which will save, in respect to six shafts, five engines and fifteen men, has, though novel to mining, been pronounced to be good by several engineers.

Trouble has been experienced through delays in the transport of machinery and materials by the South Australian Railway authorities from Adelaide to Broken Hill, and Mr. Lindsay has had some difficulty in getting men to complete his contract. To render the situation more vexing to the Manager, the flywheel of the Hornsby engine was dropped from the slings of the Orizaba in London, and the engine had to come away without it. It is, however, expected to arrive in the Austral due at the end of this month.

Good roads lead up to the property on both sides of the hill. Near the Manager's house on the township or western side is the office, and near the engine shaft on the top the assay office, suitable, convenient, and economical. Not only are the works compactly constructed near the main shaft on terraces on the footwall side of the hill, but provision has been made for additions as required. No requisite seems to have been omitted. At the foot of the hill is the furnace reservoir, and about three-quarters of a mile out on the flat is a large dam of 15,000 cubic yards. A well is being sunk 150 feet close by, and the water will be conveyed where required by pipes. The engineering talent displayed reflects no small credit on the management.

It is an easy simple ore which has to be treated. The vein matter consists of three characters—carbonate of lead, gossany material, and quartz above the water line. Below it is anticipated that the oxide ores will be changed to sulphides, which will probably consist of galena, pyrites, and in all probability blende. It is proposed to eliminate the quartz from the more silicious ore by concentrating or ore-dressing plant in order to save expense in smelting. The Manager is putting in all the grades for a similar plant to that ordered by Mr. Patton, and building all the retaining walls, so that the plant can be put into position on being ordered by the Directors. So far they have not seen their way to do

so. Instead of finding iron flux on the mine as the Proprietary Company find it, Block 14 Company must buy it, as well as limestone. The former Company's ironstone carries a little silver, rendering it still more profitable.

ASSAYING.

The laboratory is a large and well-appointed building containing separate rooms for the assay and analytical departments under Mr. F. C. Smith, who received his training under an English metallurgist, Mr. Makins, the author of standard works in his profession. Mr. Smith has also Victorian and New Zealand experience. Assaying has been carried on for the Company since November last. The laboratory also contains a balance-room with very fine chemical scales and still finer assay. The latter is so constructed that it will weigh out such trifles as a signature's weight, which, in the writer's case, went 0 002 points of a grain. It is interesting to note that this delicate instrument was introduced by Mr. Makins.

Samples from the different faces of the mine are brought into the assay office. Take one. It is crushed into a fine powder, a weighed quantity mixed with a certain flux and smelted, a button of bullion resulting. This is put into a bone-ash cupel, which is put into the furnace and absorbs all the impurities, leaving only silver and gold, if there should be any. The product is weighed and the proportion deduced. On the Proprietary Mine the assay office is illuminated with electricity; but a gas-making engine on Block 14 supplies the laboratory with gas.

No. XIII.

BRITISH BROKEN HILL PROPRIETARY COMPANY.

The history of the bold advance in the policy of segregation of the Proprietary Company in floating Blocks 15 and 16 on the London market under the title of the British Broken Hill Proprietary Company is too fresh in the minds of the public to need recapitulation here. Suffice it to say that it is felt incumbent by the responsible authorities to so develop the property as to administer a rebuke to those members of the first Exchange in the world who questioned its merits. If the British investing public had become shy of Australian mining ventures it can scarcely be said that there was no reason for it. Projects had been put before them which, in the interest of legitimate enterprises in Australia that

stand in need of imported capital, should not have been introduced to daylight. The Directors of the Proprietary Company no doubt honestly believed that they had a good property to offer, one which would yield a substantial dividend, and therefore become of the greatest service to the Barrier district by its association with British capitalists. It is not to be wondered at that the financial authorities of London should narrowly examine the proposal, and it was only to be regretted that circumstances denied them the opportunity of adding to their investigations a personal inspection of the property. The success of the Company must mean the favourable disposition of the English market towards other properties from the Barrier district. Already the value of the property has been appreciated by the Australian markets, the shares now standing at a premium.

There does not seem to be any doubt with experts that Block 15 is as good a block, so far as indications go, as any of the Broken Hill blocks; but it is only fair to say that opinions are not as unanimous respecting the worth of Block 16, which gives signs of disturbed ground, fractured lode, and possible disappointment to the more sanguine minds. If it should, however, turn out that only Block 15 is as good for ore-producing as Blocks 12 or 13 of the Proprietary Company, it will not be contended for one moment that the value set upon the two blocks (£1,200,000) is excessive, since at the present market value of the shares in the Proprietary Company either of the blocks named is worth more than that sum, while, tested in the same way, the market value of Block 14 is £1,500,000. Of course in these comparisons something must be allowed for permanent improvements and relationship to dividend paying; but on the other hand it is considered absolutely certain that at least a portion, if not the whole of the lode, has some place in Block 16, which must give it a considerable value in any event. Indeed, two years ago at the northernmost point in the workings on Block 16 the Proprietary Company made an opening of 26 feet, and discovered the lode, and there are mining men ready to affirm their belief that Block 16 will prove as valuable as any block. The lode, however, found in the Junction Shaft sunk on a bluff to the west of the line of reef on the hill would

point to its having heaved here, only the elbow being found on Block 16. Yet there are clear indications of lode stuff running through the block to the west, and it is asserted that there are at least four lodes on this particular property. Altogether there is sufficient to make the results of opening up the ground the subject of great interest.

Plans are being got out for three 80-ton furnaces with the right of taking two more, and several steam stamps have been ordered from America for a 300-ton per day concentrating or ore-dressing plant. Tenders are about to be called for a 200-horsepower winding-engine and a similar pumping plant to that on Block 14 and the Proprietary Companies. It is therefore clear that a policy of energetic development will distinguish the Board of Directors, who have a good working capital at their disposal.

At the present time the Company have a 16-horsepower engine, which will be probably worked on the North Shaft of Block 15. This shaft was formerly 6 by 3 feet, but it is now being cut down to 9 ft. x 4 ft. It is altogether in ore, and already sunk to a depth of 140 feet. Immediately it is cut down to this depth as stated an immense quantity of ore will be got out straightaway, and the Manager is confident that this shaft will bring the mine prominently to the front in a very short time.

On Block 16 two shafts are being sunk. One of them will go down to a depth of 114 feet; already it is 108 feet down. It is proposed to crosscut for the lode, and as it is in good country it may soon be looked for.

The local Directors are Messrs. Arthur Blackwood (Messrs. Dalgety, Blackwood, and Co.), W. P. McGregor, and W. R. Wilson. The Secretary is Mr. W. R. Knox, of Melbourne, who went to England and floated the Company, and the Manager is Mr. S. R. Wilson, also Manager of Block 14 Company. There are sixty-four men employed, all under contract. When active mining is undertaken—which, of course, will be some time yet—the Company will probably employ 1,000 men.

The Company will begin breaking ore in two months, though as to what will be done with it is not yet decided.

In the way of mining only prospecting is being done on Block 15, which more than takes in the remainder of the hill to the north of Block 14. Several shafts have been sunk. Starting from Block 14, No. 3 Shaft is down to a depth of 84 feet,

showing a seam of lode and iron. No. 1 Shaft touches the lode, which is 35 feet wide and about 50 feet from the surface, where it outcrops. The total depth of the sinking is 91 feet, and the bottom is in clean country, the lode being left in the tunnel underlying to the west. The last shaft on the hill is on the Bluff, sunk a year ago by the Proprietary Company. It is being cut down from 6 by 4 feet to 9 by 4 feet and timbered in three compartments. The cutting down has reached 80 feet, and it is proposed to continue it to 88 feet, which will suit the levels in the main shaft at 100 feet. It is reported that the Proprietary Company found good chlorides in this shaft. No. 4 Shaft in the flat finds the ground much divided. It is proposed to sink 100 feet and drive to the west to see what can be struck. No. 5 Shaft is down to 115 feet, the last 20 feet being in clean country. At a depth of 120 feet driving will be commenced for the lode. Owing to the depression in the ground the 120-foot level will just meet the 200-foot level in the main shaft on the hill. Everything here is dipping to the eastward. The last shaft is on the boundary of the Junction property, but there is nothing of importance in connection with it.

No. XIV.

MINING FASHIONS.

Fickle fashion which mighty man sneers at in weak woman dominates in the unlikely sphere of the miner, no less than in the circle of the sharejobber. Going no further than the Barrier for examples, observers will record how at one time men would look at nothing but bright galena. Next, the rage was in horn silver, and then came the day of the tomahawk slug, an ironstone crystal. What is the fashion now? Chlorides, and perhaps a big lode. It does not matter what other qualities it has so long as it is a big lode and the surface stones are saturated with lead and traces of silver. There are fashions, too, in the share market. Different metals and different fields have their day. Now is the time of silver and the opportunity of the Barrier. It has passed into a proverb amongst dealers that every stock has its turn. To-day there will be a run on this and to-morrow on that scrip. How it is nobody knows. "It is the fashion." Who supplies the genius to make it as much a mystery as the Man in the Iron Mask. There are many guesses, but there

is no conclusive evidence. There is, however, one fashion in share-dealing that is capable of more than usual explanation, and that is the Syndicate. Every Adelaidean, who is on the high way as he thinks to be a silver king, is in a Syndicate, and every Adelaidean who wants to be on the same highway is on the lookout for a Syndicate in which there are all prizes and no blanks. The fashion is spreading until mines in which prospects are more or less proved seem in danger of being set aside for blocks of land as to which even the prospects have only a paper existence.

LEGION OF SYNDICATES.

It will not be claimed by any enthusiastic Barrierite that the language of Broken Hill takes that same elegant and diplomatic form that it does where a jubilee of refining influences has been celebrated. When, therefore, it is here said that those who entered certain Syndicates do so in order to be "the first robbers in a swindle" it is without doubt an inartistic expression. In a classical city the idea would be interpreted by a proposition as to the originators of a laudable effort to develop the mineral resources of the country being entitled to the sum a grateful public is willing to pay to secure the benefit of their knowledge and co-operation. It is significant, too, that the law of demand and supply is wonderfully true in reference to Syndicates. So soon as metropolitan clients discover that in them is the path of wealth, so soon springs up a supply capable of meeting the wants of double the number of cities to be catered for. In the course of events the very number may become an embarrassment in so far as the ulterior object is concerned.

LEGITIMATE BUSINESS.

Perhaps the most legitimate mining speculation usually done in Broken Hill is in connection with Syndicates. From what has preceded it will not be supposed by this that every Syndicate coming from Broken Hill is to be taken *per se* as above question. Such an impression would be more than erroneous; it would certainly be mischievous. Still it seems to be that Syndicate transactions are generally based in a special way upon either actual knowledge or what is believed to be reliable information as to the genuineness of the properties. As a rule Syndicates cost little to enter into, and there is not much

to lose, while there are chances of great gain. The Syndicate market, however, being usually local, and intending buyers having for the most part either a personal acquaintance with the claim or friends who have, the merits of the venture are looked at in the light of a practical mining experience. To every rule there is an exception, and in spite of this tendency it does sometimes happen that a Syndicate is floated on the strength of certain names being able to influence the public mind favourably. Of course, it is not fair to assume that all the properties which do not turn out to be highly payable are intrinsically bad or necessarily doubtful in origin, because it may happen that at a critical moment in the development of a mine the capital required to take the flood to fortune is wanting through some accidental circumstances of the share or money market. The object of forming a Syndicate is in most cases to work a property up for a public Company, to which a grateful and intelligent public shall be admitted on condition of remunerating the original shareholders to a degree worthy of their sagacity and enterprise; and as the chances of that remuneration being cheerfully given are ordinarily enhanced as the evidences are stronger that the property is valuable, the nature of the indications and the character and extent of the lode where one has been found, and the surroundings of the case are generally enquired into and discussed. Frequently, too, long walks and drives are taken to inspect the property personally, and if there is anything questionable in the project the risk of its becoming known amongst a small and loquacious community is great. This is as it should be. How far Syndicate business is being properly conducted can easily be told by whether men make these investigations or not. When, on the other hand, the local public are content to take a share in the hope of a rise in the market, when Syndicates are floated because there is a probability that with merely market engineering they will boom elsewhere, and when the shareholders are feverish to sell their interest to a metropolitan public there is something unnatural and unhealthy. Recently, business in ordinary stocks being hampered by telegraphic delays, the Broken Hill people have found ample time to take up Syndicate business with zest. Sometimes one and sometimes two and three Companies a day are put upon the market.

FLOATING SYNDICATES.

The *modus operandi* of floating a Syndicate is simple, and yet requires skill. Supposing that likely looking ground has been found and an application made in due form for a mineral lease, nothing remains but to get the requisite number of shareholders. In some cases before a Syndicate is formed a prospector, with or without the aid of his friends, will test the ground, and only when further capital is required will appeal to the public, but in other instances practically nothing is done on the ground before forming a Syndicate. To get the shares taken up the prime mover canvasses his business acquaintances, and when the list is filled a meeting is called to adopt articles of association. The other day a miner was seen with a knot of his fellows round him, whose names he was scribbling down on a scrap of paper. He was forming a Syndicate, taking £1 each, with a promise of a payment of £9 on Saturday night. In this case there was no prospectus, nor indeed, says my informant, any document in connection with the matter save the scrap of paper, but it will probably be put right at the first meeting of shareholders. It is understood that there is a good deal of laxity at times as to the conduct of the business of Syndicates, the legal existence of many of which is believed to be involved in doubt. At the meeting of shareholders articles of association, which are sometimes taken as read, are adopted, and arrangements made for carrying on work. Of the scores of Syndicates how many attain to public Companies, and of those that do how many become dividend-paying?

SOME COMMON SAYINGS.

Proverbial sayings are outcrops in the field of human nature. The character of a people is indicated by their maxims. It is therefore interesting to note some of the terse statements in the mining world. The uncertainty of the share market is revealed in the advice "Never buy to hold" and "Be satisfied with a profit." How soon men change in their fancies is affirmed in "Every stock has its day." Of the risks of speculation one is informed in that "You cannot make a big fortune till you have lost a little one." Evidently success is built on failure; and experience is precious because dearly bought. Heroics about boldness are represented in "plunge." For all that the plunger is often a man who does not hesitate and is yet lost. The

shrewdest speculators sometimes miss the mark, for "great gains are never without the companionship of losses." How share dealing may easily become a passion is commonly meant by its frequent comparison to seductive gambling. The sanguine temperament which is so disastrous in ordinary business is regarded as essential to arduous prospecting; hence it is said, "A good prospector is always sanguine."

No. XV.

THE BROKEN HILL LODE.

A prominent feature at the foot of the township side of the hill is the diamond-drill which is being employed by Mr. Logan's Brisbane Company, with a view of tapping the lode at a depth. It was first proposed to begin boring from the bottom of a shaft which was sunk 100 feet for the purpose, but it was afterwards decided to drive from the surface close to the border of the Proprietary Company's blocks.

If the lode should be struck at a reasonable depth the Company could scarcely fail to reap a rich reward for the enterprise, having three parallel blocks to the Proprietary Company's, in all 80 acres. Before entering upon the venture some of the best experts obtainable were consulted, but time alone can prove how far their opinions were correct. The bore is down about 285 feet as the result of five months' operations. This rate of progress does not seem very startling, and it has been asked whether a shaft could not have been sunk to a greater depth in the time. There is, however, a considerable saving in expense in drilling as against sinking; and it should be noted that the drill has had to pass through some very hard ground, the weekly record varying from 9 to 40 feet. There appears to be no conclusive evidence as to whether the lode is vertical, or to what extent it is underlying below the present workings, and therefore it is purely a matter of speculation whether the laudable enterprise will succeed in finding it under 1,000 feet or 5,000 feet or at all. At 285 feet the drill struck a seam of rich ore and a shaft is to be sunk upon it. In consequence the shares bounded from 10s. to 78s., though they have since receded somewhat. The Broken Hill Underlay Company, who have also blocks adjoining the Proprietary Company's, intend to await the result of the diamond-drill work by the Blocks Company.

THE SOUTH LINE OF LODE.

There is no doubt but that the Broken Hill lode passes through a portion of one block of the Broken Hill Central Company, and through the Broken Hill South Company's property, while it has been proved in the next blocks in line belonging to the South Extended, where a patch of chloride ore was found on December 21 last. The southern boundary of the last-named claim is $2\frac{1}{4}$ miles from Block No. 10, the southern boundary of the Proprietary Company. In the White Lead line, which takes its name from a big quartz blow on the course of the lode, it is customary to begin with the South Extended, the list following with South No. 1, Rising Sun, Rising Sun South, White Lead Central, and White Lead Proprietary. For 8 miles south of the Proprietary Company's claim the ground is pegged out on the line of lode, while the work of extension is going on. Strong ironstone formations show in places, as also quartz blows, indicating the line of lode. It is considered to be no small recommendation of a claim to say it is on the line of the Broken Hill lode, so much so that frequently the greatest ingenuity is displayed to find reasons for affirming that properties are on the line; but it should be remembered that the lode is not at all parts so great and rich, or even necessarily payable, at a distance from the immense Bonanza at the Hill. To the westward is the Pinnacle line, which is by some considered to be connected with the Broken Hill lode; but while carbonates of lead are obtained down to the Rising Sun they are not found to be so frequent in the Pinnacle, where silicious galena is a characteristic.

THE BROKEN HILL CENTRAL COMPANY.

Between two and three years ago a Sydney Syndicate bought from Messrs. Nutt & Co. four blocks, constituting the Elizabeth Claim, on which is to be found now one of the most important mines on the Barrier, the Central Mine. Of the four Elizabeth blocks overlapping the Blocks then belonging to the Proprietary Company, three were on the flat to the east of the hill, while one, the south, took in the cap of the ridge. It is on this fourth block that work has been done by the subsequently formed Company, the result being gratifying in the direction of finding the Broken Hill lode in a condition of great richness. The lode admittedly passes from Block 10 into

the Central property, but at what precise point is a subject of dispute. According to a recent survey made for the Central Company there is 1,125 feet of chloride lode in the block. There are two other lodes, the eastern being 1,375 feet, and the western 1,000 feet long. The Central lode is vertical and about 50 feet wide, the eastern underlays west 2 in 10, and is 14 feet wide, and the western underlays east 2 in 10, and is about 30 feet wide. The eastern and central lodes are almost at a junction now at the 200-feet level. The value of the eastern and western lodes is yet undetermined. Chloride was struck in the central lode at the 200-feet level, where the crosscut is over 40 feet. Since Jamieson's Shaft in the Proprietary Mine has been kept dry the water in the Central's shaft has disappeared. The Company have spent about £5,000, and though they have had no returns as yet there is reason to believe that it will be one of the earliest Broken Hill dividend-paying mines. The capital of the Company is 75,000 £1 shares, and sales have been made at a high figure, though they have since receded in price.

The shaft, which is situated 350 feet north of the south boundary, is down 200 feet. There is a No. 2 Shaft, and the staff, numbering thirty-two men, are driving to cut the two shafts, the distance between them being 190 feet. The advantage of this connection will be in the ventilation and filling up of the mine. All the buildings are of stone, and the timbering looks very substantial. There is a horizontal engine of 28-horsepower, with boiler, feedpump, and other accessories of the newest type. The buildings and machinery are new, and very creditable to Captain Morrish, the Manager.

The lode stuff comprises a very good proportion of native silver and sulphides and lead in very small quantities, the large percentage being chlorides of silver. Assays have reached high figures, and though the Dry Creek return of 80 oz. of silver to the ton recently was less than some expected would be given, it must be acknowledged that it was a most satisfactory average. Before long the output per week will be increased to 200 tons, and though the expenses must be greatly increased accordingly, yet if the average return is maintained at even something less than 80 oz the mine ought to pay handsomely.

The Central Company have only two of the four blocks referred to above, the other two having been floated into a Com-

pany, the scrip of which is sometimes called "pups." There has, so far as can be learned, been no discovery made on the ground.

BROKEN HILL SOUTH COMPANY.

This Company have four 40-acre blocks running for a mile south of the Central Mine, and indications show three or more lines of lode on the total length of the three northern blocks, on which eight shafts have been sunk at varying depths. No. 8, the deepest shaft, gave a big quartzite lode which never assayed very much. Attention is being confined now to a machinery shaft to strike the lode at probably 300 feet deep. The shaft is down more than 200 feet, and the machinery, which includes an 18-inch cylinder engine, is in course of erection. The eastern and western lodes in the adjoining mine have been identified by Captain Boughtman (who has been in charge during the last few months) in two shafts, and recently it has been reported that the central lode has been cut. The Company, which consists of 100,000 £1 shares, half being fully paid up or capitalized and the other to 14s., have spent about £12,000 in prospecting and developing the mine. Quite recently the selling value of the mine exceeded a million and a half sterling, because no property could be better situated, but the market fell to something over a third of the amount stated. It however went up again to £15 a share on the report of cutting the main lode and receded. The quotation on March 2 was £10 10s. Shareholders having a property through which passes a lode found to be rich in chlorides to the north and to have chlorides to the south of their boundary, may be excused from taking a gloomy view of the situation, and urged to pursue a vigorous policy of development.

No. XVI.

THE WHITE LEAD LINE.

Mention has been made of the meaning and extent of the White Lead Line. It may be stated as an interesting fact that though the flat to the south of the Broken Hill is about 60 feet lower than the flat to the north it has no water, although the sinking is to a depth of 150 feet, while in the north flat water is obtained at a depth of 70 feet. This is probably due to the presence in the south flat of diorite dykes and the hard casing of the lode. With regard to the properties on the White Lead Line, the Broken Hill South Extended Mine has

attracted attention through the discovery of the lode and a patch of chlorides. The South Extended No. 1 Company is about to begin active operations. At the Rising Sun the Manager was hourly expecting to cut the main lode. The Rising Sun South, which has a north and south lode, has been favourably reported upon, and will be probably worked very shortly by a Company. There is no work of importance being done upon the White Lead Central, but the prospects of the White Lead Proprietary Company are being proved. The claims on the White Lead Line extend over 12 miles from Broken Hill, and pegging out continues.

BROKEN HILL SOUTH EXTENDED COMPANY.

This Melbourne Company, formed in October last and now employing six men under Captain Thompson, have four 40-acre blocks a mile in length adjoining the Broken Hill South, and the work done is chiefly represented by two shafts, one 26 feet deep and the other 141 feet. A patch of chloride ore found on December 21 last brought the mine into prominent notice, but nothing has since been found of a sensational character. The chloride ore was struck to the west of the shaft at a depth of 121 feet, the lode being 2 ft. 6 in. wide and 18 inches in from the shaft, and the bulk assay gave a return varying from 23 to 75 oz. Underneath at the 126-foot level is a 7-foot lode which was cut by driving in 10 feet. It is, however, poor, carrying but 3 or 4 oz. silver to the ton. The 26-foot shaft, which was sunk by the prospectors, has a lode of good ironstone formation. The capital of the Company is 100,000 £1 shares, 15s. paid up or capitalized, and the selling price on February 11 was £1 3s.

SOUTH EXTENDED NO. 1 COMPANY.

This Company, which was recently floated in Melbourne, have two blocks (which belonged to Mr. Sylvester Brown, a well-known Director in the Junction Company) between the South Extended and the Rising Sun properties. Some trenches have been cut on the ground of South Extended No. 1, but recently the Directors were on the spot selecting the scene of future operations. At present the ground has not been really proved, but in the meantime some idea of the prospects of the Company may be gathered from the nature of the success attending the operations of the adjoining north and south claims.

THE RISING SUN COMPANY.

Still going south is found the Rising Sun Mine, which, at the time of my visit,

was in favour with the share market, owing to the prospect of immediately cutting the main lode. It has since been cut. The ore is of the Pinnacles character. The property, which adjoins the South Extended Company, is $2\frac{1}{2}$ miles from Block 10 of the Proprietary Company, and comprises 160 acres, 80 acres being on the line of lode. The main shaft is sunk to a depth of 151 feet, and a crosscut is put in at a depth of 141 feet, driving east about 40 feet, cutting the vertical lode, which goes north-north-east and south-south-west. Captain Layland, the Manager, at 39 ft. cut a 6-inch vertical seam of quartz, mixed with galena. An easterly lode of gossany formation dipping 1 in 9 has been struck by the South Shaft, which is in it from 23 feet; and a seam of carbonate of lead, which increased from 2 inches to 23 inches in 20 feet of sinking, is still widening. The capital of the Company is 90,000 £1 shares, 12s. 9d. paid or capitalized, and the selling price was £1 3s. on February 11.

OTHER CLAIMS.

The Rising Sun South claim adjoins the Rising Sun, and has a north and south lode running through it with a 40-foot shaft upon it. Captain Dunstan has favourably reported upon the ground, and a Company will probably be formed to work it.

The White Lead Central Syndicate have a claim close to the preceding, upon which no work of importance has been done.

The White Lead Proprietary Company have a shaft 67 feet deep on a strong lode underlying west, which shows on the surface to be 18 feet wide with signs of galena. There are three other shafts, two being vertical and cutting the lode. Captain Creer has the management of the property.

For 8 miles south of this the ground is all pegged out on the line of lode, and the work of extension is going on with talk of Companies to develop the claims.

THE PINNACLES.

The three "isolated steeple-like peaks running to a height of several hundreds of feet" on the ranges, about 9 miles to the south-west of Broken Hill and 15 miles from Silverton, furnish the name for the next line of lode, the Pinnacles. It is a disputed point whether the line is connected with the Broken Hill lode, but the character of the ore obtained would tend to show that it is not. Geographically the Middle Pinnacles Group comes first,

the Pinnacles Tribute and South Pinnacles following. Owing to the silica in the lode stuff, concentrating or ore-dressing plant is a necessity, and it is in the attempt made to provide this requisite that the Pinnacles has acquired an unfortunate reputation. The Pinnacles Tribute Company's concentrating plant is called the white elephant of the district. It is regarded as a pitiful sight that a good mine and valuable machinery should be idle through bad designing. The Pinnacles Group might be made the support of a large township, but at present the population is diminishing. Captain Lawrence has just taken charge of the Pinnacles Tribute with the purpose of remedying the defects in the erection of the machinery. He is a tall, young-looking man, with energy and experience, and it is to be hoped that his efforts will be crowned with success. At the South Pinnacles nothing is doing, but encouraging results are being obtained from the work at the Middle Pinnacle mines.

THE MIDDLE PINNACLE MINE.

At the Lady Bevy's Mine a vertical shaft has been sunk to a depth of 100 feet, and a large body of silicious galena met with in the bottom. A crosscut has been put in to the west for a distance of 120 feet, two lodes being struck. One is 40 feet wide, and the width of the other, which is being driven upon, is undetermined. The lode formation consists of iron, copper, and chalcoppyrites, blende and hornblende, and silicious and cubical galena; and it has greatly improved in the quantity of lead—from 4 per cent. at the surface to 25 per cent. at 100 feet deep. An air shaft has been sunk and connected with the other shaft to the crosscut. The Company have the advantage of the experienced management of Captain N. Hawke. There are three lodes on the property, all running into the centre of the Pinnacle. This mineralized belt goes through to the Lady Bevy's Extended and North Pinnacle, both of which claims have been opened up with fair results so far as they have gone. The capital of the Lady Bevy's Company is 60,000 £1 shares, the amount paid or capitalized being 20,000 contributors 11s. 6d., 40,000 promoters £1. The selling price of shares was contributors' 12s. 6d. on February 18, promoters' £1 on February 17. The capital of the Lady Bevy's Extended Company is 40,000 £1 shares, one half (promoters') being fully paid up or capitalized, and the

other half (contributors') being liable for 5s. a share. The latest sales are—Promoters', 4s. 6d. and contributors' 3s. 9d. on February 18.

The Pinnacles Junction Mine, which adjoins the Lady Bevy's on the south, and comprises 80 acres, has just been started. A shaft, which is 30 feet deep, is working on lode stuff. The lode is 22 feet wide at the south part of the property, where the site of the main shaft has been fixed, and where sinking will be commenced immediately. Captain Hogan, the Manager, has four men under him. The Company's capital is 48,000 5s. shares, on which there is no liability. Sales were made at 8s. 6d. on February 18.

PINNACLES TRIBUTE COMPANY.

The principal facts connected with this Company have been so recently before the public that a brief reference to the mine only will be necessary. There are two lodes running through the property, the Minnie Moore in a north and south direction, and the Charlotte Greenway in a north-east and south-west, a junction being made near the smelters. The whole of the work has been done in the Minnie Moore Lode, which is the champion lode, 17 feet wide, and carrying a good percentage of lead throughout. After leaving the Pinnacles the lode has been sought for on the South Pinnacles property, but nothing has been done there for some time. It seems to be generally admitted that the Tribute Company has a good mine. The main shaft is 197 feet deep, and there is a drive for a distance of 152 feet on the course of the lode, which appears to widen as it deepens, and to give an even-grade ore. It is difficult to limit the quantity which could be raised, but it is safe to say that there is a supply sufficient to keep a concentrator going for years. The character is silicious galena, and a ton of concentrated ore would go about 60 oz. to the ton and 60 per cent. of lead. With a 50-ton plant at work the mine should pay a generous dividend. So far as the history of the mine is concerned a smelting plant with refinery was erected three years ago, and as concentrating machinery was needed on account of the silica in the ore the Tribute Company was formed. A year ago the Company erected a common jigger, and then put up the present ore-dressing plant, which was designed by Mr. Fitzgerald Moore, one of the original promoters. The plant, which was purchased from Messrs. Parke & Lacey, has proved anything but a success. One

cause may be found in the inadequacy of the foundations. As an instance, the stonebreaker, which is very heavy, is placed at such a height and on such slender supports that the immense jaws have been broken in two like small pieces of brittle road metal. It would seem absurd to say that there is any lack of engineering talent to enable the Company to put up proper machinery, and, though this is recorded as the third misfortune experienced in connection with machinery for the mine, it is sincerely hoped that it will be the last. Captain Lawrence has been engaged to endeavour to apply remedies. His scheme, which is favourably spoken of, will cost £700. The capital, £80,000, has been enlarged by £20,000.

The Kincheaga is a new Company adjoining the Pinnacles Tribute property, and work has been started with a view to find and prove the Charlotte Greenway lode.

No. XVII.

THE BROKEN HILL LODE.

Taking the Broken Hill lode to have been traced for 4 miles south of Block 10 and something near that distance to the north of Block 16, there is an extent of nearly 10 miles of lode, the proprietary's original claim being 2 miles long; while the branches to the east and west might cover an additional 7 miles. It is quite clear that the full extent of the lode is not yet known, and in this connection the progress of mining in its neighbourhood will always have interesting features. The man who first said the Broken Hill lode went to the Bonanza was almost hooted, as might be, for instance, the bold theorist who should now openly declare the Broken Hill lode to be a saddle-back with really two lodes underneath. Such a theory is to be met with at Broken Hill, though expressed with "bated breath," for it does not accord with the popular idea, nor probably with the facts at hand. To return, however, to the undiscussed courses of the lode, after it leaves Block 16 it makes an elbow into the Junction and returns to the North, passes on to the Victoria Cross, Imperial, and Cosgrove properties, and it is believed it will be found beyond in the Round Hill and Broken Hill Flats claims. An eastern branch goes through the Bonanza, Silver Crown, Picton, and probably the eastern portion of the Broken Hill Flats. The West Lead Company, whose property

adjoins Blocks 15 and 16 on their western boundary, and the Junction on the south, lay claim to having the western leg of the lode. The Copper Blow lode, which passes through the Potosi, the Gorge, and a portion of the Round Hill claims to the west of the Round Hill itself, is supposed to be a branch of the Junction lode through the Imperial. There is a mineralized belt of country up to Piesse's Nob. With one or two exceptions but little more than prospecting has been done on the claims, but there is a fair prospect of many proving payable properties, employing much labour, and returning satisfactory dividends. It is when considering the extent of the promising mineral country and seeing but a few holes sunk here and there upon it that one recognises the force of the statement that the development of the Barrier is only in its infancy. Within two or three years it is confidently estimated that eight mines alone on the Broken Hill lode will employ 5,000 hands, or four times more than they do at present.

THE NORTHERN LINE.

THE JUNCTION MINE.

Until the discovery of the very rich ore in the Central Mine it was a question whether the Junction or the Central would be the first on the line to pay dividends; but though the Central may win in this cheering rivalry, there is every reason to believe that the Junction will make a close second. On the western summit of the bluff which overlooks Block 16 on the flat the poppet-heads and machinery-shed of the Junction call attention to the importance of the mine. The outcrop, which is lost in the flat to the eastward, appears on the Junction Peak, and the Company have found the main lode beneath. It is very large, makes an elbow halfway through the block, and will give considerable quantities of payable stuff, consisting of chlorides, copper-stained ore, carbonates of lead and zinc, and sulphides. The first parcel sold was 110 tons, which was put through at Dry Creek, and it gave an average of 97 oz. of silver to the ton, and at the time of visiting there was 60 to 70 tons bagged, which it was expected would go between 60 and 70 oz. of silver to the ton. Though the mine is not properly opened up yet ore is being raised all the time. The lode has been proved in several places to be from 40 to 50 feet wide. The Manager has driven on the course of it for nearly 300 feet, the

average width being about 30 feet. In the bottom crosscut the men had driven for 80 feet and not touched the wall. The lode there was mostly sulphide and zinc blende, which would average from 20 to 25 oz. of silver to the ton; but Mr. Dickinson, the Manager of the Barrier Concentrating Company, who are erecting a plant on the Junction ground, hopes to make the dressed ore go from 50 to 60 oz.

The plant referred to will be a 100-ton concentrating machinery, which will probably be ready for work by the end of this month. There is plenty of water in the mine to keep it going, and it is believed that there is sufficient ore as well. For the use of the site the Concentrating Company will give the Junction Company the first claim to the employment of the plant. Though there was no means of ascertaining the quantity of ore in sight or the average richness of the whole, an inspection of the lode showed that the Company had a very valuable property, while the erection of the concentrating plant on the ground must necessarily improve the prospects as to dividends. Some mistakes were made in the initiatory stages, shafts being sunk too far away from the lode and orders for machinery being delayed; but now the mine will soon be fairly opened up with appliances for working it to the greatest advantage. There is a 25-h.p. engine for service at the main shaft. This shaft, which is named after Mr. Penglase, the original owner of the claim, is sunk to a depth of 210 feet, and the Manager is going down another 100 feet. There are other shafts to the north and south, but nothing is being done in them at present. Screens and bins are used for systematically classifying the ore. There are several buildings on the ground, captain's residence, assay office, workshop, &c. Captain Hebbard, who was previously engaged in the Broken Hill Mine, has been the Manager for the past twelve months. It is a Melbourne Company, and the capital is 100,000 £1 shares paid up or capitalized to 16s. Only one sixpenny call has been made. Shares were sold on February 18 as high as £67s.

THE NORTH MINE.

Adjoining Block 16 on its northern boundary the Broken Hill North Mine is found on a claim covering 100 acres of hilly country. It was my misfortune to call when the Manager (Captain Lane) had gone to Melbourne for machinery and

the Acting Manager was absent; but I learnt that the prospects were regarded as encouraging, though underground work was stopped through the water rising. The necessary pumping gear was shortly expected, and upon the water being kept down the lode would be proved from shaft to shaft.

At about 250 feet from the boundary of Block 16 the South Shaft had been sunk 155 feet, and at about 150 feet a long drive put in on the course of the lode, which comprised manganese, ironstone, and carbonate of lead. Little more than 3 chains to the north of this shaft, and in the centre of the block, is the main pumping and winding shaft, to which the south will minister as an air and auxiliary shaft. About 140 feet from the northern boundary, a crosscut put in 62 feet east from the bottom of a shaft 150 feet deep, showed the lode to be 33 feet wide, and its substance to include galena, grey ore, and carbonate of lead. There are well-timbered shafts on the mine, and good buildings. The mine was under offer to a Syndicate for three months at £80,000, and it is understood that the purchase has been concluded of what will probably prove a remunerative property.

THE VICTORIA CROSS.

The Victoria Cross is the next claim, and on this property three shafts have been sunk. In the deepest, 200 feet down, chlorides were found near the surface. There is another shaft to the westward, 50 feet deep in country. I could not learn that the lode had been cut. The claim is being worked by a Sydney Company, with Mr. Kirby as Manager. The capital is 100,000 £1-shares, 15s. paid or capitalized, and the selling price on February 10 was £1 1s.

THE IMPERIAL.

A Victorian Company has just been floated to work this promising claim, which comprises 154 acres, and is situated between the Victoria Cross and the Cosgrove claims. No permanent work has been done, but sufficient prospecting, according to Captain Lane, to prove that the main Broken Hill lode, seemingly of great size, passes through the property. The Company will provide pumping and other machinery in order to sink the shafts, which it is proposed to put down to from 100 to 300 feet. The capital of the Company is 100,000 £1-shares, of which 60,000 are issued paid up to 10s.

COSGROVE.

Between the Imperial and the southern

boundary of the Round Hill claim the Cosgrove Company have three blocks of 120 acres, on which four shafts have been sunk. In No. 1, which is down 65 feet, the lead formation is from 8 to 9 feet at the bottom. The Manager has begun driving on the lode. In No. 2 Shaft, which is down 27 feet, are several classes of good ore. The width of the lode is about 6 feet. No. 3 Shaft, which is about 120 feet from No. 2, struck nothing, but the miners are just getting on to a shute of ore. No. 4, which is 380 feet from No. 3 Shaft, is down to 72 feet, getting a lode 14 feet wide. In this shaft water came in at the rate of 400 gallons an hour, and it is proposed to erect powerful pumping plant. About £4,000 has been spent upon the property upon which the father of the present Manager, Mr. Cosgrove, was the first prospector. Fourteen men are employed, and rich ore is being broken for shipment. It is a Sydney Company in 100,000 £5-shares, £4 2s. being paid up or capitalized on 10,000, and £5 on 90,000. The last sales were at £1 on February 11.

ROUND HILL.

A portion of the Round Hill Company's claim is between Cosgrove's and the Broken Hill Flats. A shaft has been sunk adjoining Cosgrove's claim to a depth of 70 feet at the water level, and a crosscut is being driven to cut the lode formation, which appears to be about 20 feet wide on the surface or bed rock. The country is highly mineralized with kindly appearance. The main property of this Company consists of ten 40-acre blocks, on which there are several lodes running through, particularly the main Broken Hill lode and the Copper Blow lode. It may be convenient to mention here the work done by the Company on those blocks not connected with the Broken Hill lode. Captain W. H. Matthews, the Manager, informs me that No. 1 Shaft is sunk 100 feet, and a crosscut driven 85 feet through lode formation containing veins of galena. No. 2 Shaft is sunk 200 feet to water level, and a crosscut driven through the lode for 58 feet, being 91 feet from the shaft. Portions of the lode are composed of strong bands of galena, similar to Pinnacle ore. The Manager will continue to crosscut until the western wall is reached as he anticipates then to get far better class ore. No. 3 Shaft is sunk 200 feet underlie on the western wall. At the 100-foot level some good ore was met with, assaying over 100 oz. of silver to the ton, also ore containing chlorides. At

the bottom the men are at present driving a crosscut, which is 49 feet from the shaft, through lode formation which gets wider as depth is attained. This crosscut will be continued until the eastern wall is struck. Then probably drives will be started north and south. There is considerable surface prospecting, and there are several shafts sunk in addition to those mentioned. The capital of the Round Hill Company is 16,000 £20-shares, paid up or capitalized to £19 3s. Sales reached £6 2s. 6d. on February 13.

BROKEN HILL FLATS.

This is the name of the adjoining claim on the northern line of lode, and it is frequently known as "Boyces's," Mr. Boyce being the prospector and Manager. The property comprises three blocks on the line of lode, and a shaft has been sunk to a depth of 73 feet. Water is coming in from the east, which is regarded as a good sign for the near presence of the lode. This claim includes a fourth block to the eastward, on which prospecting is being done to find the easterly branch of the Broken Hill lode coming down through the Bonanza, Silver King, and Picton.

THE EASTERN LINE.

The Bonanza line is an easterly branch of the Broken Hill lode. On the Bonanza Company's claim, known as Faucett's Blow, efforts are being concentrated at the shaft sunk to a depth of 50 feet, where chloride ore was met with. Captain Tresize, the Manager, has gone through a lode formation of over 30 feet, composed of silicious galena, carrying quantities of hornblende, an indication as to the permanence of the lode. The capital of the Company is 80,000 £1-shares paid up or capitalized to 15s., and sales were made on February 13 up to £1 5s.

On the Silver Crown, the adjoining claim, there is a shaft 125 feet, and the men are driving 120 feet west to cut the lode.

The Picton, which is the next property, comprises 120 acres. There is a shaft 23 feet down, and at the bottom copper-stained ore, ironstone, kaolin, and gossan are found. These are promising indications. Mr. Phillips, the prospector, is the manager. The claim has recently been floated into a Syndicate of 200 shares £25 each, £12 10s. being paid up or capitalized. Sales were made on January 31 at £60.

The Broken Hill Flats Syndicate have a block beyond the Picton, and prospecting is being carried on to find the lode.

THE COPPER BLOW LINE.

About 2 miles west of Broken Hill is the Copper Blow claim, under the management of Mr. Punterveid, a concentrating expert of Frieberg. There are three lodes which pass through to the Potosi. The western is silicious galena, and there is a shaft on it 90 feet deep, and still going down. Then there is the copper lode, which outcrops on the surface; the copper ore is being broken, sorted, and sent away. A vertical shaft has been sunk between the two lodes, and the Manager is cross-cutting east and west to connect them. A shaft has been sunk on the northern portion of the claim on a strong iron lode. This is a promising property. It is an Adelaide Company with Mr. J. S. Reid as Chairman of Directors. The capital is 80,000 £1-shares, 40,000 being paid up or capitalized to 11s., and 40,000 to £1. The sales were 5s. and 12s. 6d. on February 7 and February 14 respectively.

The Potosi, which was floated into a Company six months ago, recently started to work with eight men, under the management of Mr. O'Rorke. There is a large lode of copper-stained ore and carbonates of lead, and a shaft is down 30 feet upon it. This is also an Adelaide Company. The capital is 60,000 £1-shares paid up or capitalized to 15s., and the last sales were 8s. on February 8.

At the Gorge two men are working for a Syndicate. The prospects are similar to the above. A portion of the Round Hill property is on the Copper Blow line as previously stated.

NO. XVIII.

OUTSIDE DISTRICTS.

There is not perhaps so much known of the Barrier anywhere as in South Australia, and yet there are many people there who have ideas which naturally seem peculiar to those on the field of the extent of ground occupied by the mines. A speculator having a friend at Broken Hill writes requesting him to spend a few minutes to visit one or two mines and give him the latest information as to their prospects, and naming as a cheerful little walk before breakfast the Pinnacles, Big Hill, Hidden Seeret, and Gipsy Girl. The South Australian correspondent feels somewhat astonished to learn by return post that it would take a pair of good bush horses and a long day of hard driving to perform that slight act of friendship, but when he reflects he thinks

it is just as well that the field is something bigger than the Adelaide Park Lands. The extent of the silver and tin bearing country which has been prospected is about 1,000 square miles, and yet Mr. Wilkinson, the Government Geologist of New South Wales, said only a few months ago:—"The Silverton field will, no doubt, be greatly extended by new discoveries, for the silver-bearing formations, talcose, and gneissoid schists, with intrusions of granitic and dioritic rocks, cover a much larger area than has yet been prospected, and in this area rich gold, as well as silver, lead, bismuth, and tin deposits are likely to be found."

Brief references which will serve as a guide of the locality and the estimate held of the prospects will be given of some of the principal claims in the districts outside of the Broken Hill lode—districts which, after all, have been only prospected, and are therefore only on the threshold of development.

THE NINE-MILE DISTRICT.

This district, which was one of the earliest worked in the Barrier, is situated about 4 or 5 miles from Broken Hill, in a north-westerly direction. The outcrop is a kind of stained carbonate of lead, and it seems that the large lodes improve in depth, carrying a much better grade of ore. It is likely to become a big lead-producing district. Concentrating machinery will be required.

The Hidden Treasure has a shaft down about 30 feet, and a contract has been let to sink to 100 feet, at which depth a cross-cut will be put in to cut the lode. The outcrop is large. Captain N. Hawke, of the Lady Bevy's Mine, is the Manager.

The Broken Hill Proprietary Company's blocks represent the first claim pegged out by Mr. Charles Rasp, who afterwards pegged out the Broken Hill. Two shafts have been recently put down. A large lode formation on the top of the hill warrants full prospecting.

The Colossus is owned by an Adelaide Syndicate, and work has lately been started under a Barrier pioneer, Mr. Howden. It is on the same line of lode as the Broken Hill Blocks and the Kaiser. There are several costeening pits showing lode formations of considerable size carrying lead.

On the Kaiser there are three shafts, and a very large formation 20 feet wide. A trench has been put through it, showing carbonate of lead, said to contain a

payable quantity of silver. The claim was recently floated into a Melbourne Company, with a capital of 80,000 £1-shares, 15s. being paid up, or capitalized.

At the Second-to-None the men are sinking on a new lode. Some fair ore has been obtained from this property, but not in sufficient quantity to pay. The bagging of ore is still proceeding. The claim is by some held in great favour.

Messrs. O'Keefe and Beach have three blocks adjoining the Second-to-None. There is a very large formation running right through showing carbonates of lead freely. They have according to indications two parallel lodes.

At the Nine-Mile Company's ground there are two shafts sunk. At the main one fair galena ore was recently struck at 90 feet. There was a very large formation of silicious galena, but it seems as if the silica is dying out at depth, giving place to cubical galena. There is a large quantity of low-grade ore in sight. The lode formation generally consists of cubical and silicious galena, blende, and mundic. This mine has the reputation of being the most energetically worked one in the district. Mr. J. Stevens is the Manager. The capital of the Company is 80,000 £1-shares, 15s. being paid up or capitalized. Sales were made on February 11 at 5s. 7½d.

The Excelsior, known as the Barrier Pioneer, is in the hands of a small Syndicate. There is a 19-foot lode formation of even grade silicious galena. The holders are miners, who have had occasionally to go away to work in order to get funds for developing what is regarded as one of the best shows in the district.

THE ROCKWELL PADDOCK.

This large paddock is a recent addition to the list of promising places on the Barrier, furnishing one of several parallel lines of reefs with Broken Hill and carrying very large iron lodes which make galena in patches. It is situated about 8 miles east from Broken Hill. Driving past the foot of the Central mine, there is a road branching off to the paddock. About 2 miles before reaching the Sydney Rockwell the silver-bearing belt appears. There are several claims pegged out. As to some the lessees have a suspension order exempting from work, while as to others the applicants are not obliged to work. The fact is that development is delayed for the want of capital. One claim under suspension is said to have a

very large quantity of rich stuff on the surface, going as high as 50 per cent. of lead and 18 oz. of silver. No doubt the necessary capital will be forthcoming with the proofs of the merits of the claims; but the investing public cannot too strongly insist upon the production of such proofs in regard to any mining speculations.

The Sydney Rockwell has a vertical shaft sunk to a depth of about 80 feet, and the footwall has just been struck of a very large silicious lode 27 feet wide. Chlorides in small quantities were found on the footwall. The prospector sunk another shaft till he was driven out by water at a depth of 50 feet. Mr. Parker, late Manager of the Barrier Ranges Association, is Manager of the property. A large quantity of concentrating ore will probably be obtained from this, which seems to be the main lode, and running for 2 miles.

Adjoining this claim, and on the same line, is the South Sydney Rockwell, a new Company. A shaft has just been started.

The Amalgamated Rockwell, a Melbourne Company, with three blocks, is on the same line, and the shaft is down 20 feet. A nice bunch of galena has been met with.

The South Melbourne Rockwell, also comprising three blocks, is about half a mile from the Sydney Rockwell. It is under the management of Mr. Dugan, who has a shaft 86 feet deep, and is driving from the bottom in the hope of cutting at a distance of 40 feet the western lode. It is an iron lode with manganese, quartz, and small pieces of galena.

Next comes the Rockwell Company, of Melbourne, with Mr. Bennett as Manager, who has a vertical shaft 150 feet deep. It went through the lode at 90 feet, and the rest was sunk in dead ground. He is driving east and west for it. There is another shaft on the lode about 30 feet deep, and some very good ore is being obtained near the surface.

The Marden Rockwell is also a Melbourne Company, holding three blocks. Three shafts are being sunk on the property on which there is a big dam for water supply. The Company are starting off fairly and deserve success. They have two large lode formations, both lead-bearing.

The Redhill is sometimes called the Devil's Cap Gorge. The top of the hill is like a crater, and the strata appears in rings. From the mineralized character

and peculiar formation of the hill the property deserves thoughtful attention. A shaft has been sunk 50 feet, and a crosscut driven on a large lode formation with copper and lead. There is a lot of asbestos on the claim.

The Great Consols is on the line of the Devil's Gap, having some good lead ore and kaolin.

Further on in the same line is the Bismarck, which belongs to a Syndicate who have two blocks. They are sinking a shaft on contract. Chloride ore is being bagged. This property is about 4 miles from the Marden Rockwell.

On the Excelsior, also a Syndicate, there is a good-sized ironstone lode, carrying a little silver and a quantity of calespar, highly suitable for fluxing purposes. A parcel is being broken for Block 14. The shaft is down 50 feet.

The Wilcannia Comstock has been recently formed into a Syndicate, who are working the claim, which was one of the first pegged out in the paddock. It has a big lode formation, with lead in places, and has also the only spring of water yet found in the Rockwell.

The Wilcannia Rockwell has recently been floated into a larger Syndicate, under the name of the Rockwell Consolidated. The shaft is down 70 feet on a big lode formation, and they are crosscutting for the hanging-wall. Mr. John Lewis has just taken charge of the mine under the new Syndicate.

Next to this claim is the Ironclad, under the management of Captain Lane, of Broken Hill North Mine. There is a big ironstone copper-stained formation, and fluxes are being raised.

The Anaconda is a very large copper show. Captain Dunstan, late Manager of the Great Cobar Copper Mine, has undertaken the management. Work is going on satisfactorily, and copper will be shipped in a very short time. The ore will fairly go 25 per cent.

THE BIG HILL MINE.

Fourteen miles from Broken Hill in a south-westerly direction, and about 8 miles from Silverton, the Big Hill forms a leading landmark for miles around. It was pegged out by Messrs. Hoffman and Penny, who for twelve months worked the claim, comprising seven 40 and one 20 acre blocks, and it was formed into a Company in Adelaide in November, 1886. The Directors are the Hons. T. Playford, M.P. (Chairman), and J. G. Ramsay, M.L.C., and Messrs. White,

and T. Low. The Secretary is Mr. J. H. Gurr, and the Manager, Mr. Pemberthy, of Fullarton, who has a good reputation and a mining experience of thirty years, has been in charge for five months. There is a tunnel 740 feet long in the hill, in a north-westerly direction, cutting in its course five lodes.

The widest, which is 22 feet, is being driven upon. A shaft was sunk 41 feet on the hill and a tunnel driven to join that made; and the union was happily effected, reflecting great credit upon the Manager. There is another shaft sunk on a higher point of the hill, and it is 104 feet deep, with 50 feet of ground between it and the tunnel. A winze has been sunk in the tunnel; it is 8 feet deep and being timbered. The fact of so many lodes being found with a tendency to fall together as they go down is considered to be a promising indication. All the easterly lodes underlay more or less west, but the main lode goes down, if not quite, nearly vertical. The vendors of the claim sent away ore to the Pinnacles smelter, which assayed 18 oz. of silver to the ton. It has been observed as a fault that there is no lead, and that it cannot be looked for in the porous ironstone obtained; but, on the other hand, it is stated that lead was found on the top of the hill. It is, however, agreed that at a depth a rich sulphide lode may be found; and in view of this possibility, it would have been cheaper to have sunk a deep shaft rather than to have driven a long tunnel. Still the tunnel will furnish special facilities for now going down to a depth. As some recent assays have given only 8 oz of silver to the ton, the Directors have deemed it prudent to get an expert's opinion as to future operations. Both he and the captain agree that at about 100 feet in depth from the present level several of the lesser lodes, especially the 2 ft. 6 in. pyrites, gold and silver bearing lode, and the main lode will come together; that at waterline, or probably sooner, rich ore will be met with in considerable quantity; that very large shoots of ore exist in the main lode at and above the present level; that by continuing the present drive north, large quantities of higher grade ore probably payable will be met with, and that it is advisable to continue the present shaft to waterline, but not to leave the lode, and to sink a shaft from the surface about 400 feet north of the tunnel on the cap of the lode (which is 350 feet wide), near to and in a line with

the ironstone cave, which is proved to be all silver-bearing, and is exactly similar to parts of the cap of the Broken Hill lode. This work would necessitate the employment of about sixteen to twenty men, at an estimated cost of about £200 per month, and a threepenny call would raise more than double the amount. At present only four men are employed. In the matter of the Directors concentrating their efforts on an energetic policy of deep-sinking there seems to be no second opinion, while there is not wanting some ground for believing that the property will before long prove a valuable one. The capital of the Company is 82,087 £1-shares, 32,087 being paid up or capitalized to 12s. 9d., and 50,000 to 15s. Sales were reported at 3s. and 5s. 6d. on February 10 and 11 respectively.

The Big Hill South claim adjoins the above property, and is in the hands of a Silverton Syndicate. It is on the same line of lode, and a vertical shaft has been sunk 124 feet deep, but there has been no discovery made of great importance.

No. XIX.

THACKARINGA.

Thackaringa, from which at a few miles distance can be seen South Australia, has a special interest to us, as the trade must be a perquisite of Cockburn, which is the nearest town. Silverton is 15 miles further on from Thackaringa. It is encouraging to know that mining at Thackaringa is in a more healthy state than it has ever been. The promise is of considerable prosperity in the near future.

Thackaringa is a historical spot in the Barrier. It was there that indications of silver in the Barrier district were first discovered. While Julius Nickel was digging a well on Thackaringa Station in 1875 he noticed some small veins of galena, and pegged out 400 acres of ground, on which is to be found now some leading claims. Discouraged in his application in Adelaide for capital and in the low percentage the ore returned, Nickel retired from the scene; and Stokie, who kept a small public-house on the settlement, induced Green and Garrot to join him in raising silver. An insured shipment was sent to England, but was jettisoned on the voyage. In 1876 Stokie went to Umberumberka and made fresh discoveries there. The appropriately named Pioneer was the first worked claim, and several hundreds of

tons of bright galena was taken out close to the surface.

The silver lodes in the district cover an extent of ground 4 miles long by 2 wide, and there are several good mines. The number might be greatly multiplied but for the unfortunate introduction of the M.C.P. titles on a large scale, in the Thackaringa district particularly. The difference between an ordinary mineral lease for twenty years with obligations to employ a given amount of labour and a mineral conditional purchase, which is practically a freehold of the claim, is most marked in relation to its development. If the M.C.P. system meant no more than the purchase of a block for £2 an acre after an expenditure of £2 an acre upon it, it would not be so unpopular in the district as it is; but it is in the release of the holders from working the ground that objectionable features arise. Two-thirds of Thackaringa is locked through this system of mineral freeholds. It is satisfactory to learn, however, that though late in the day the Sydney Government, recognising the evils of the system, have resolved to limit as far as possible its operation, but it is still open to question whether special legislation is not necessary to abolish it. By way of example, reference might be made to the claim known as Devillin's, having one of the best shows in the district. There is a strong lode formation showing large quantities of lead; but the claim is not being worked, and need not be, because it is a M.O.P. title. The Goat Hill Claim, for which a good deal of lead has been taken, is another of many similar instances in point.

The residents of Thackaringa look with pride upon the Pioneer and Gipsy Girl Mines, regarding them in the rank of ore-producers next to such a property as the Broken Hill Central. Concentrating machinery is about to be erected on the Gipsy Girl property, which will be of great service to the district.

The township is prettily situated in hilly country, with the mines clustering close to the settlement, and the population, which is between 200 and 300, mostly miners, is increasing. Architecturally the township belongs, like all the townships on the Barrier, to the Iron Age, the structures being erected of the friend of hurriedly built settlements—galvanized iron.

THE PIONEER.

This claim, consisting of two 40-acre

blocks, adjoining the Gipsy Girl, and nearly in the town, was first worked by "Paddy Green," and it is reported that only three years ago over 3,000 tons of ore was sent away, while the deepest hole on the ground was less than 30 feet in depth. The property was taken up by a Company on September last, and Mr. R. Gibson was appointed Manager. Owing to the way the ground had been scratched about for surface ore he lost much time in getting things straight, but so satisfactory has been his progress that from 80 to 100 tons of ore is being sent away monthly. The 6 over 6 Block seems to have a rich entanglement of lodes winding and unwinding in extraordinary fashion. The main lode, the serpentine coursing of which the captain was as familiar with as a pilot is with a tortuous channel, varies from a foot to 4 feet in width, and varies, too, in its richness, being bunchy in its nature. In addition to the quantities of ore shipped a large stack is being accumulated, to be dressed by the local concentrating machinery about to be erected by the Barrier Concentrating Company. No. 1 shaft is sunk to a depth of 82 feet. The lode at the bottom, 3 feet wide, is composed principally of ironstone with little carbonate of lead having a tendency to improve. No. 2 Shaft is 73 feet deep, and No. 3 82 feet, and each is serving a useful purpose in opening up the mine. Assays of ore taken from it have given 71 per cent. of lead and over 40 oz. of silver to the ton, but portions go as high as 960 oz. The class of ore raised is chiefly steel-grey galena and copper-stained carbonates of lead going well in silver. Sometimes bunches of chlorides are met with in these carbonates. A shaft has been sunk on 8 over 6 Block to a depth of 16 feet on a seam showing capital prospects. About thirty men are employed. The outlook for the mine appears to be decidedly cheering. The capital of this Melbourne Company is 100,000 £1 shares, paid up or capitalized to 15s. Sales were made on February 11 at 11s. 3d.

GIPSY GIRL.

This dividend-paying Company is an offshoot from the Barrier Ranges Association. This claim has been worked for about five years, and three years by the Company. About 3,000 tons of galena ore has been sent away during the former period. The property, which adjoins the Pioneer, has four shafts. The main shaft is sunk to a depth of 120 feet, and a drive east and west made from 250 feet. A winze is in from the bottom level about

15 feet. There is a big body of ore, including about 2 feet of solid cubical galena. The other two shafts are connected with the main one. A water shaft, about 400 feet deep, is sunk, 400 gallons per hour flowing; and a 175 feet crosscut is being driven south from the lode, which runs east and west, the cutting of which it is expected will create a big rush of water. The object of getting the water is to supply the ore-dressing machinery which the Barrier Ranges Concentrating Company are about to erect close by, and which must prove of great value to the district. While there are surface indications of galena scattered about, work has been confined to one rich lode, 100 tons of ore being shipped monthly. The mine has paid a threepenny dividend for two months running, and the prospects are that better dividends will be payable. There is 2,000 tons of seconds awaiting treatment by the concentrating machinery. At present the mining is being done in hard ground, but it is expected to get out of it directly, so that the same amount of ore will pay better dividends. Splendid working ground is found in the crosscut in the water shaft. Mr. Polkingthorne is the Manager. The capital of the Company is 32,000 £1-shares, 15s. 11d. being paid up or capitalized. Sales on February 11 were made at 18s.

THE LADY BRASSEY.

Previous to the formation of the Company Messrs. Hawson Brothers shipped a lot of lead away from the claim, which has two lodes. The underlay shaft is down 87 feet. In driving on the lode the water became so strong that a vertical shaft was sunk and pumps were fixed. This shaft is down to a depth of 100 feet, and there are poppet-legs and a portable engine. The men are cross-cutting for one lode, and there is a shaft on the westerly one, showing good lead with a fair percentage of silver up to 40 oz.

BARRIER RANGES ASSOCIATION CLAIMS.

Two men are working on the Comstock, about a mile from the township, in a northerly direction. There is a shaft over 100 feet deep, and a considerable quantity of stuff has been sent away from it. Very good lode of ironstone and galena.

Half a mile to the north-west from the Comstock is the Bonanza, on which two men are employed sinking on the lode, chiefly ironstone with bunches of ore in it. It is from a foot to 18 inches wide.

The prospects of the Alberta, a 40-acre claim, are considered to be very good.

There is a large lode formation which has given as much as 50 tons of galena in one patch. The ore cuts out entirely and another patch has to be found. At present the men have just picked up the lode again in the vertical shaft and are driving upon it. It is looking very well.

The Homeward Bound adjoins the Outward Bound and has a distinct lode of the same character. A large quantity of ore has been sent away at different times. Men are driving from a 50-foot vertical shaft along the lode.

OTHER COMPANIES.

To the south is the Gipsy Boy, a recently floated offshoot of the Barrier Ranges Association. Two men, who are down 75 feet, are driving on the lode, which is 18 inches to 2 feet wide. They have sent away some ore, which is of the same class as the Gipsy Girl, to the Dry Creek Smelting Works. It is a promising property.

Four or five claims have just been amalgamated and recently floated in Melbourne under a powerful Directorate, the Company being known as the Gipsy Queen. The property includes the Hercules. Work will be started at once.

Two miles from Thackaringa is the Outward Bound, belonging to a Melbourne Company. In the early days there was a large quantity of ore dispatched from a good lode, but the shoot has been lost. The Company cannot, however, do much, owing to the water difficulty, and they are awaiting other developments at the Lady Brassey, which is the adjoining ground.

The Dan O'Connell and King William leases, lately the property of the Barrier Ranges Association, have been floated in Melbourne into a Company under the title of Dan O'Connell. On each of these claims there is a shaft, and ore has been raised and sent away. This property, which is to the east of the Alberta, two blocks intervening, promises well.

The Bon Accord belonged originally to the Barrier Ranges Association, but has been recently floated into a Broken Hill Syndicate. There is a vertical and an underlay shaft, but no work has been done in the latter for five or six months. The former is 37 ft. 6 in. deep, and it is expected to cut the lode at 50 feet. No ore has been sent away for some time.

No. XX.

RELATIONSHIP OF SILVERTON TO BROKEN HILL.

How refreshing and soothing is peace-

ful Silverton after the noise and bustle of Broken Hill! It comes like a Sabbath rest after a week's toil. As I rode into the pleasantly situated town, a range of hills gracefully skirting it, through its wide, clean streets with cosy cottages (stone, weatherboard, and painted iron) and occasional gardens, and passed up its main and macadamized street on one Wednesday half-holiday, I could not fail to like Silverton any more than could one who had been tossed upon an excited sea, with irritating and annoying rush and roar, fail to enjoy being transported to some landscape threaded stream, moving with the gentle good humour of the poetic brook.

While trying to benefit by the Silverton sedative after the too-powerful Willyama stimulant, I met a gentleman who, though he had been there but two or three years, had passed the portal to the silver palace. It was my misfortune to ask him, in sympathetic accents, "What is to become of poor Silverton? Is it to be a sanatorium or residential refuge for Broken Hill? or is it to be snuffed out?" To my astonishment, for at Broken Hill I was taught that the alternatives had been recognised at Silverton, he grew indignant, and replied with such eloquence that it would have repaid the employment of stenography. I should not have been surprised if he had told me that Silverton has a perennial source of prosperity hidden in yonder azure-sheathed mountains, and that though Broken Hills may come and go Silverton would continue unmoved for ever. But he went further. He said that Silverton was the centre of mineral wealth that would outbid the contributions to Broken Hill; that the mines belonging to Silverton would in the aggregate mean more trade than those that belonged to Broken Hill; and more, that it was impossible to limit the new developments in favour of Silverton; that Silverton had a good part of the Barrier trade, which none could take away. I saw with new force as my acquaintance proceeded, but I trembled for him. The citizens would be so proud of the enthusiastic believer in their fortunes, and electors so appreciate his prophetic gift, that his fate seemed sealed—he would be tempted to adorn the Council Chamber or the Senatorial Hall.

Silverton feeling is not so exactly "How charming would either be if t' other were away," but "how unfortunate is the situation!" Rivalry there is none, Broken Hill is unquestionably the capita of the Barrier. But though the question

of the capital had apparently settled itself by natural events, and men had made arrangements accordingly, it is still an occasion for regret that by the mere accident of circumstances they have to be upset. Yet it is a happy accident. No Silvertonian would, if he could, omit Broken Hill. It improves Silvertion. If the silver-lamp of the firmament command sole attention till the sun rise in overpowering majesty, its lustre is not dimmed but intensified through the altered relationship. So Silvertion must borrow of Broken Hill. This is already proved. Business at Silvertion has been healthier during the last few months than usual. Properties which could not be put upon the market have no difficulty in obtaining notice through the favourable disposition towards the Barrier owing to the merits of Broken Hill. Claims which had been neglected for want of capital are being worked, and so things generally have conspired to improve trade. Yet so far as one can see Silvertion must take a secondary place on the Barrier. The exodus to Broken Hill has already been considerable, and that amongst business men. Nobody wishes to live at the "Dustholia" of the Barrier at present, however accommodating the conditions of residence may ultimately become there. Business compels. Even the local *Age*, a most loyal Silvertonian, must go. But when full account has been taken of this exodus and the altered surroundings, there are mines—and their number may yet be legion—in the neighbourhood to make Silvertion a very large town. The population is now about 1,700. At present the Warden and his staff are located in it, and a contract has been let for considerable public buildings. Trade connections have been established which cannot easily be severed, and Broken Hill itself will become a source of profit to these.

Many of the mines in the districts remaining to be now treated of will draw the supplies from Silvertion, and as it will be noticed that these are not few, and many not insignificant, it can be understood how it is that in Silvertion the fear of Broken Hill has not a paralyzing but a stimulating effect. When one learns that there are no empty houses in the town, and that every one appears to be doing well, one is liable to be infected with enthusiasm for the future of Silvertion. In the evenings, when the victories of the share market are related in the spacious saloons of the hotels, champagne flows

freely, and this is not, as a rule, the popular beverage in a town with business on the "down grade."

UMBERUMBERKA MINES.

About a mile and a half down the Silvertion line in the direction of Cockburn is the historic and compact Umberumberka Mine. It was pegged out in the early days of the field by Mr. John Stokie, whose name is indelibly written upon the Barrier records, and who obtained a quantity of ore from the claim. An Adelaide Company was formed to buy it, giving the discoverer £250 cash and 4,000 paid-up £1-shares, and since November, 1882, they have opened the mine up, added other freehold claims to it, at a cost of £2,500, spent £7,000 on permanent improvements, and paid three dividends, equal to nearly half the subscribed capital. Why the shares should sell for so much less than those of mines with less merit it is difficult to say. The only reason stated is that the shares are confined to few hands, it being affirmed that seven-eighths are held by the Directors.

There are two lodes in the property. The main lode runs the whole length of it, and there is a cross lode which junctions in the Umberumberka Block 16, and then goes to the Umberumberka North. This was cut in the railway cutting, and was 10 feet wide, showing chlorides assaying over 2,000 oz. of silver to the ton. The bulk, however, only gave 18 oz., but it comprised very suitable stuff for fluxing. A vertical shaft was sunk 130 feet, and a crosscut driven into this chloride lode at another part, and steel galena was obtained. The main lode runs through four blocks, and the Company have recently bought the Umberumberka Extended, which also takes it. The main vertical shaft is 400 feet deep. At the 60-foot level there is a drive of 150 feet, at the 132-foot level of 290 feet east and 180 feet west, at the 192-foot level of 480 feet east and 130 feet west, at the 254-foot level of 500 feet east and 40 feet west, at the 300-foot level of 750 feet east and 350 feet west, and at the 360-foot level of 250 feet east and 50 feet west. There are four other shafts. The lode formation varies from 4 feet to 50 feet, while the shoots of ore range from 4 inches to 3 feet in width. One rich shoot now being worked upon is 150 feet in length, and another from 300 to 400 feet. Up to the end of last year 7,634 tons of ore was sent away, which was mostly sold in London, and

realized an average of £20 a ton, and since then 50 tons a week has been shipped, averaging 100 oz. of silver to the ton. There is 2,500 tons on the surface of second-class stuff awaiting treatment. The mine is supplied with a concentrator and crusher by May Brothers, of Gawler, which cost £2,000. The water supply is deficient. About 4,000 gallons a week is obtained in the mine, just enough to keep the boiler going. Reservoirs have been constructed, but the scarcity of the supply prevents the concentrating plant from being employed at full time. A 22-h.p. Robey engine, one 6 ft. 6 in. boiler, tramlines, and railway siding are among the many other means at the mine for carrying on the work to the greatest advantage. About £7,000 has been spent upon permanent improvements and £2,500 upon purchases of claims. The mine has paid three sixpenny and one shilling dividends, equal to nearly half the capital subscribed. Mr. E. P. Evans, the first Manager, had less than £400 placed at his disposal, and for three years he made the claims self-supporting, payable ore being found a month after the Company started. Captain C. H. Wilson is the Manager, and Mr. J. Thomas, assayer. One hundred men are employed. The capital is 20,000 £1-shares, 6s. being paid up or capitalized on 16,000, and £1 on 4,000. Sales were made of the former on February 16 at £1 6s.

The Umberumberka East adjoins the Umberumberka. There is a shaft down 125 feet on a copper lode which makes ironstone with silver lead. A drive has been put in 50 feet west carrying ore all the way in the 100 feet level, and the owner is driving 60 feet east at the same level with good ore the full length of the drive. Men are stoping and there is 35 tons of ore at grass. Mr. E. J. Elder is the proprietor.

The Umberumberka North has after two years' idleness, owing to some dispute about the ground, begun work again. Some good ore was sent to England as the result of the previous workings. The chloride lode from the Umberumberka passes into this claim.

The Umberumberka West had a shaft down 160 to 170 feet, and just got fairly to work, when operations were stopped. The claim, which belongs to an Adelaide Company, has been idle for six months. They have a continuation of the Umberumberka main lode, but so far no payable ore has been found, though the indications are good.

LAKES CAMP.

Though the township supported by the Day Dream and neighbouring mines is officially named Wilson, it is commonly called the Day Dream. Some five years ago Meech & Sinclair took up the Lakes Camp Mine, now known as the Apollyon, and after dissolving partnership Meech discovered the Day Dream, which was for some time termed Meech's Blow. About 10 miles from Silverton, in a north-east direction, is the now shrunken township of the Day Dream, which a few brief years ago was a busy settlement. There was a continuous stream of bullock teams upon the dusty bush road, and the prosperity of the place seemed all but assured. Now one may frequently travel from Silverton to the Day Dream without meeting a person on the forsaken track, while at the township the leguacious prospector who has seen better times bears testimony in the solitary public-house to the glory that has departed. To the right are seen the smokeless rust-accumulating smelters, which in an unhappy hour the Barrier Ranges Association erected, and round and about are the sites of houses which have been carried off probably to witness to some other mushroom town. But it is quite within the range of possibilities that a permanent thriving township will yet be found at the Day Dream, for if the efforts to prove the mines at a depth are successful there will soon be a steady increase in the labour employed.

The Apollyon, which formerly belonged to the Barrier Ranges Association, has been floated into a separate Company, though it is still under the management of Captain Dick. The shareholders are the same, but there is a distinct scrip. This mine had the richest ore found on the field near the surface, and lower down it had been followed to over 200 feet in depth. The closing of the smelting works and a general depression caused the work to be suspended, but it was not stopped through any want of appreciation of the merits of the property. The Manager is prospecting in the bottom levels, and has a very nice show of silver at the 97-foot level. This mine has a special interest in that it was the first in which chlorides were found. Of how little was known of their value is attested by the fact that a shipment of 42 cwt. of the ore lay upon a London wharf for some months because the consignees did not think it worth the wharfage. Ultimately it brought in the astonishing sum of £700.

At the Day Dream, which has given some magnificent returns in the past, very little is doing. "The mighty Day Dream," says one, "drove men mad, and a good-sized township sprang into existence only to fade like a spring flower." The reason that the first assays took such a hold on the public attention was that whereas the highest returns previously had been 70 oz. of silver to the ton from as likely looking ore, that from the Day Dream gave 200 oz. Then the excitement of that period was increased by the Bobbie Burns sending samples which were valued at 14,000 oz. of silver to the ton; unfortunately expectations became too high-pitched, as events followed. Though like many of its contemporaries the Day Dream has of late fallen into the shade, the mine has been well opened up, and it has yielded rich ore in generous fashion. Pinched out now, other rich portions may possibly be found capable of bringing the Day Dream again into notice.

The Barrier Ranges Association was formed in the early days of the field to take over mines, work them, put up smelters, and otherwise develop the field. Mention has been already made of several of their Thackaringa claims. The Association about three years ago erected large smelting works at the Day Dream, and smelted a large quantity of ore, but there was not sufficient produce to keep them at work. There is, it is melancholy to add, no probability of getting sufficient stuff to restart the costly machinery, which comprises a 25-ton and a 40-ton water-jacket furnace. Captain Dick is the general manager of the Association's mines, including those named below.

At the Hen and Chickens (B.R.A.) a large amount of work has been done in the way of mining, a great deal of ore having been raised. The surface ore having run out, the Manager is trying to develop the lower levels.

A more important mine than the former is the New Year (B.R.A.), which has returned some very good silver at the 50-foot level. The shaft is being sunk below that level. At present it is down to a depth of 70 feet, and as there is a heavy body of water a level is being opened out at the depth. In the shaft there is ironstone carrying good silver in the lead and good lead ore.

MORNING STAR CLAIM.

Five miles from Silvertown in a gully is

the Morning Star claim, having a copper lode and a silicious lode carrying shoots of galena. It has been formed into a Melbourne Company. Mr. William Masey has been appointed Manager.

No. XXI.

TOWER HILL.

The road from Silvertown to Tower Hill has several interesting features. It passes through picturesque and undulating country in sight of rugged ranges. Its name has a tragic association—Lake's Grave-road, and about 5 miles out, the grave is found on the road enclosed by a picket fence, while close by, at the turn of a deep gorge to the right, is the unfinished stone house of the deceased, fast falling to ruins. Mr. Lake, a station owner, some years ago was returning from Umberumberka, and fell off his horse. Twice he was assisted into the saddle again, but his third fall found him dead on the ground, and there he was buried. A little further on to the left is a conical-shaped peak, slightly bent at the summit, standing severely isolated in the cloudless sky as if it were some Titanic fortress. It was called Lake's Nob, but now more appropriately Tower Hill. It is singularly cut off from communication with the surrounding country by two creeks. The hill has more than outward charms to attract, for it is highly mineralized with carbonates of all kinds, copper, silver, and lead, and chlorides have been found in it. The claim (160 acres) belongs to a Sydney Company, who are driving a tunnel through the hill to discover the lode, the indications of which show that it is very large. It is good ground for lead bearing, and recently the Company took up another lease known as the Jane Armour.

BRINKWORTH PADDOCK.

At the Mundi Mundi Station, belonging to Dr. Stirling, is the Brinkworth Paddock. It is 12 miles from Silvertown, in a straight north-east line. There is not enough work done to say much as to the character of the country, but this portion of the field has been very much neglected. It is, however, likely to turn out well. Tin and copper, as well as silver, have been found in the neighbourhood of the station. There are some very large copper shows.

The Occidental has a vertical shaft sunk 60 feet in very hard ground, and a cross-cut to cut the lode, which shows on the surface 12 feet in width. Good assays of silver and

lead have been obtained. It is a promising property belonging to a Syndicate.

The Brinkworth is owned by Messrs. Harrold Brothers, of Adelaide, and has an excellent show. They shipped 7 tons of surface ore, which went 50 per cent. of lead and 80 oz. of silver. They have just let a contract to sink a 50-foot shaft. The lode is 8 feet wide, with carbonate ore.

To the north is the Day Dawn. A Company has been formed in Sydney to work it. The former proprietors sent away a quantity of ore, which realized £36 per ton net. The galena assayed very high in silver.

The Great Northern and Jubilee Syndicates have claims in Mundi Mundi with good surface lodes, but no work has been done. Assays of stone from the former have been obtained, giving 60 oz. of silver to the ton and 40 per cent. of lead.

TERRIBLE DICK.

About 15 miles from Silvertown, on the Lake's Grave-road, is the Terrible Dick, a Sydney mine. It is named after a well-known character in the district, Richard Tonkin. About two and a half years ago he sold the claim, consisting of two 40-acre blocks, to the Sydney Company, who have spent £26,000 in developing it, without, so far, any returns. There is a large 12 by 6 feet shaft, 50 feet deep to the first level, 107 feet to the second, and 21 feet below that, and it is proposed to sink still deeper. The drives are—In the 50-foot level, 132 feet south; and in the 107 feet, 147 feet south and 130 feet north. There is a crosscut going west 142 feet to cut a lode showing on the hill, and at a further distance of 80 feet to intercept the western lode, anticipated to be a large one. A rise has been made to the surface from the 50-foot level, and there is a winze which takes to the bottom level. There is a 12 h.p. engine, winding gear, iron poppet heads and plunger, and draw lift pumps. The water is increasing from all the faces in the low level. Though a few tons of ore is being raised, the object now is to open out the mine until the smelter is erected. The new smelter, which will be before long at work, includes a 25-ton and a 35-ton Nonpariel round furnace, designed to save from 10 to 15 per cent. in coke. The main lode, which is of a mixed character, is between 4 and 6 feet wide. The formation is plumbic schist. In the eastern shaft, which appears to have been overlooked, the Manager had discovered a show of galena. There was

a large stack of ore on the surface. Messrs. Wilkinson and Murray, two of the Directors, were visiting the mine, and stated that they were determined to push on the work as fast as possible, and that with the exception of 500 the shares were held by five persons. From thirty-five to forty men are being employed. Captain S. C. Iveson has recently succeeded Captain Hocking. The capital is 12,500 £20 shares, £19 being paid up or capitalized. Sales were made on December 1 at £21, and in Sydney on February 16, at £6 10s.

LADY CARRINGTON CLAIM.

The Lady Carrington claim is situated about a mile and a half on the ranges from the Terrible Dick Mine. Two shafts have been sunk on an ironstone formation, carrying galena. It is an Adelaide company, and Mr. Parkes is the Manager. The capital is 50,000 £1 shares, 20,000 being paid up or capitalized to 2s. 6d., and 30,000 to 15s. 6d. Sales of contributors were made on February 11 at 3s. 9d.

STEPHEN'S CREEK.

Stephen's Creek, with its interminable windings marked by large umbrageous gums, is one of the most refreshing characteristics of the Barrier scenery. Though it seemed a barbarism to cut down those trees, the only trees of any size to be met with, the demand for timber in connection with the mines was so great that in spite of more than sentiment the axe was often heard ringing by the dry soft bed of the creek until the Warden proclaimed it a reserve. Even now an occasional member of this valuable line is taken by the daring contractor, who runs a risk of Police Court prosecution and fine. The creek does more than nourish the trees that please the eye and furnish shade from the fierce summer sun; it gives in the soakage a valuable water supply. It may not at all times be so sweet and pure as could be wished for, but in a district where a drink for a horse costs 4d., it is difficult to estimate the great value of the creek soakage. Much of the ground in the locality of the creek is of a highly mineralized character, and it has the reputation of being the cheapest to develop on the Barrier.

The Hidden Secret, which is situated 13 miles in a north-east direction from Silvertown, is a claim comprised in a 40-acre block next to the Gem. It was floated into a Company in December last,

and Mr. T. Rowe, formerly of Yorke's Peninsula, is the Manager. No. 1 vertical shaft is sunk to a depth of 51 feet, striking the lode at 30 feet. The underlay shaft is 60 feet, and connects with the vertical. The men have sunk through the lode 21 feet, driven in the footwall side for 6 feet, but are not through it. The character of the lode is cubical galena, ironstone, and grey ore, assaying very high. There are two other lodes, and No. 2 vertical or main shaft is being sunk with a view of reaching the three lodes. Fifty bags of ore was ready for shipment to the Dry Creek Smelting Works. It is a Melbourne Company, Mr. R. Cane being the legal Manager. Nine men are employed.

Adjoining is the Gem, comprising 34, 36, and 40 acre blocks. The three Hidden Secret lodes pass through it, and shafts have been sunk 110, 30, and 20 feet respectively. One lode is a galena, another a chloride, and the third a mixture. Two tons of ore was sent away to prove the quality, and it assayed 70 per cent. of lead and 32 oz. of silver to the ton. Vigorous work will be undertaken directly.

There is a large outcrop on the Champion Lode property, consisting of 60 acres to the north, and a vertical shaft, which is 48 feet deep, has struck the lode, which is about 2 miles in length, going right through the hills. It runs through the Southern Cross claim. A sample stone went 65 oz. of silver to the ton.

On the upper part is one of the best properties on the creek. The Southern Cross, which is held by a Port Pirie Company, who recently struck a new lode in Randall's Shaft. It is a big strong silicious galena lode, showing about 20 oz. to the ton and 40 per cent. of lead, and the quantity seems apparently unlimited. In Fitzpatrick Shaft, which is 70 feet deep, they are driving on the lode. A lot of stoping has been done, and 90 tons of ore was sent away recently. There is about 2 feet of lode formation in the face showing galena. The manager intends to drive ahead for fully 50 feet before commencing stoping operations. The Spalding Shaft is down about 50 feet, on a very large lode formation. There are three lodes on this property, which consists of three blocks. About twenty-five men are employed under Captain Horan. The capital is 40,000 £1 shares, 3s. 6d. being paid up or capitalized on 34,000, and £1 on 6,000. Sales of contributors were made on February 11 at 6s.

Adjoining the Southern Cross is the Parnell. There are two shafts and three lodes. It has just been formed into a Company in Melbourne, and work will be started soon.

Up near Lindsay's Crossing and Plesse's Nob, 9 miles from Broken Hill, is the Eaglehawk, named after an eaglehawk's nest on the hill. There are five shafts on the ground, and a fine lode formation and regular walls. About 37 tons of first-class ore was sent away during last year. A vertical shaft is being sunk to cut the lode at a depth of 100 feet. The water has prevented them hitherto from sinking on the lode, but it is expected that when the vertical shaft is down it will be tapped. Machinery will be erected and good progress looked for. The lode formation fully warrants sinking, and the chances are that a great improvement will take place below water level, such rich ore having been obtained near the surface. Captain James Eddy is the Manager. The capital is 50,000 10s. shares, 2s. 6d. being paid up or capitalized on 30,000 and 10s. on 20,000.

At Piesse's Nob an Adelaide Syndicate, the Cambrian, have two shafts down 80 feet, with a drive at the bottom, showing a small branch of galena of fair quality. The west shaft, which is 60 feet deep, contains kaolin ore, with very fair chlorides. The prospects warrant an expenditure for development. The capital is 100 £20 shares, and sales were made on January 30 at £30.

No. XXII.

PURNAMOOTA.

Purnamoota, which is one of the oldest districts on the Barrier, is about 12 miles east from Waukaroo, 18 miles north-east from Silverton, and 22 north-west from Broken Hill. It was a thriving township before the halcyon days of Silverton, some very rich ore having been found in the district, and in point of historic interest is second only to Thackaringa. It has suffered neglect—a neglect which dates back to the time when the fortunes of the Barrier seemed to be hanging in the balances. Had not Broken Hill turned the scale it is possible that the cheerful face of things presented to-day at Purnamoota would not exist. No doubt the field would have progressed, but so gradually that it is not too much to say that Purnamoota might still have been under the shade. However, the district is now receiving a large share of the notice it deserves, and attention is being

paid to galena ores, a number of claims being worked, while others will shortly be employing labour. One of the chief recommendations of the district is the easy character of the ground, the formations being of laminated schist. The population, which is growing in numbers, in and about the township is 380. A find of new country about 12 miles north of the settlement has led to many new claims being taken up. Leases have been applied for the ground, which is between the Silver King and Mount Robe, and as soon as the applications are granted they will be worked. There is a large ironstone outcrop. Mr. Butterworth, of Silvertown, has reason to believe that an English Company will take up the Atlas claim in Purnamoota and develop it.

Mr. Wilkinson, the Government Geologist of New South Wales, who not long since visited Purnamoota, said, after speaking of the War Dance and Victory lodes:—"It is probable that many other similar silver-bearing lodes will be discovered in this district, and though they may be too small to support smelting works at each mine, yet from them collectively will no doubt be raised considerable quantities that could be forwarded for sale or treatment at some central public reduction works."

The only gold mine at present on the field, the Golden Crest, is in Purnamoota.

The Victory, which is one of the leading claims at Purnamoota, is about $4\frac{1}{2}$ miles from the township in an easterly direction. It has been worked for three and a half years, and a good quantity of ore has been shipped, including one parcel of 15 tons and another of 10. The bulk assays in Adelaide gave—silver 40 oz. to the ton, and lead 70 per cent. There are three known lodes running on the property, which consists of five blocks of land (one being a water reserve) measuring 181 acres. One lode runs in Block 16 and two in Block 60 to the east. The ground is easily worked, and the lode formation is principally schist with shoots of galena in it, and nodules of the same ore interspersed. On Block 16 there are two shafts, one 20 feet vertical, and an underlay connecting it. From the bottom of the vertical shaft there is an underlay shaft, and the contractors are down 35 feet of the 50 feet contracted for. There is a formation there of 4 feet, carrying shoots of galena ore, which makes splices on the foot and hanging-walls. The stuff is sometimes found in 5 or 6 cwt. lumps.

The ore is mostly taken from that lode, which carries a little grey ore now and then. On Block 16 the vertical shaft is down 40 feet and the underlay 40 feet. The lode formation, which is 3 feet thick, is ironstone with micaceous schist. A shaft was sunk to cut a lode showing at about 70 feet, but when 40 feet down the men found chlorides and the branch was followed up by an underlay shaft. About £1,500 has been spent upon the property, and the Syndicate has formed a Company in order to get capital to sink main shafts and erect concentrating machinery. The ore being very suitable for dressing, the ground for cheap development, the claim, considering the number of lodes upon it and the probability of the ore improving at a depth should, with careful management, show good results.

The Victoria adjoins the Victory on the south-west, and a good deal of work in the way of prospecting has been done upon it, there being five different shafts. A lode can be traced from the surface down for 24 feet, being the greatest depth sunk.

The Mayflower, in the same neighbourhood, has been held for a little over two and a half years, but not been worked for two years. A fresh start has been recently made by a Sydney Syndicate. To the original 20-acre block a 40-acre has been added. The shaft is down 85 feet, and the men are sinking on the underlay. The width of the lode formation is about 2 feet, and about 4 inches of nice ore has just been cut.

The claim formerly known as the Caledonian is now the Great Britain. Thirty tons of ore has been sent away. There is a shaft down 43 feet upon ironstone quartz formation, with occasional silicious galena, but it is proposed to sink a vertical shaft to cut the lodes on the property at a depth and thoroughly prospect them. Mr. Hicks is the Manager.

The War Dance is a mile from Purnamoota. There are five parallel lodes, and two shafts are being sunk. From an underlay shaft down 75 feet close to the War Dance Extended some promising stones were taken out at a spot not far from where the vertical shaft of that claim will meet the lode. No. 2 Shaft, which is down 105 feet through quartz, has cut water. About twenty-six bags of ore was shipped one week, the character being carbonate of copper, yielding chloride of silver and grey ore intermixed. The lodes, though small, carry rich ore and appear to be permanent. Mr. Ellis is the captain.

On the Black Prince, which belongs to a Melbourne Company, there are three shafts, two of which are still going down. More than 100 tons of good ore has been sent away. The ground is very hard. Mr. Reynoldson is the Manager. The capital is 80,000 £1-shares, 13s. paid or capitalized, and sales were made on February 11 at 4s.

The Black Prince South is also a Melbourne Company. A shaft was sunk 70 feet, and the men are driving a crosscut to cut the lode. The capital is 60,000 £1-shares, 12s. 6d. paid or capitalized, and sales were made at 2s. 4d. on October 11 last.

North of this is the Silver King East, and the Lady Sutton, at present in the market.

Mount Robe, Mount Robe Extended, Midnight Ramble, and other claims, have big nodules of galena, which are found scattered all over the country. Work will soon be started upon the properties.

The Golden Crest, which is the only gold mine on the Barrier, though gold licences have by way of precaution been taken out in respect to a few properties, is near Mount Robe. Three tons of stone from the claim, which was crushed at the Woodside battery, yielded $1\frac{1}{2}$ oz. to the ton. A Company has been formed for vigorous work.

MOUNT GIPPS DISTRICT.

Near Mount Gipps Station, about 9 miles north from Broken Hill, is the Britannia Scotia annexed by a Port Pirie Company. This mine has sent away about 200 tons of very good ore. There is a shaft down over 90 feet, but the influx of water demanded machinery which is being erected. A winding plant has been finished by May Brothers, of Gawler. The mine has been idle for six months, but good returns may be looked for shortly. The lode formation is 4 feet, yielding horn silver. There are indications right through the Company's two blocks. The Manager is Mr. Stratton. The capital is 36,000 £10-shares, 5s. 6d. being paid up or capitalized on 24,000, and £1 on 12,000. Sales were made on October 25 last, at 2s. 6d. and 5s. 6d.

The Britannia Extended, a Melbourne Company, is 5 miles away from the Britannia Scotia. There are two shafts, a vertical 60 feet and a connecting underlay shaft. It is in connection with this claim that a standing joke of the Barrier is told. The Manager reported having "driven 4 feet in the direction of Broken Hill."

The smoke of the smelters can be seen from a hill near the shaft 9 miles distant. At the time of visiting the claim the drive had been extended to 52 feet in the same direction. The shaft has furnished a little galena intermixed with micaceous schist.

The Silver Dale is 2 miles distant in a northerly direction from the Britannia Extended. An underlay shaft has given some promising stuff. A few tons of grey galena and chloride ore is being raised monthly. A vertical shaft is to be sunk. The well-defined nice lode formation warrants deep sinking. The property, which is a promising one, belongs to a Silverton Company.

NICKLEVILLE.

About 13 miles from Broken Hill, leaving Mount Gipps Station 4 miles behind, is the diminutive township of Nickleville, called after Julius Nickle, pioneer prospector at Thackaringa. It is somewhat strange that the names of the pioneer prospectors have not been more used in the nomenclature of settlements, for it would not only serve to call attention to the merits of these hardy toilers, but would maintain an interest in the origin and progress of mining in the Barrier. Over the hill, rising in front of the public-house, are the Kate and Maybell claims, and a mile or so to the right the Rise and Shine Mine.

The Kate, comprising 100 acres, which belongs to an Adelaide Company, has furnished from time to time very rich ore, but it is patchy and occasionally difficult to pick up. There are several leaders which point to the presence of a good lode in the locality. Eight men and two boys are employed, and the Company have paid one dividend of 3d. There are five shafts on the ground, and some good grey ore with chloride in it is now being found. Captain Norton, who has been in charge for nine months and is about to give place to Mr. Peters, recently took up a block under a gold-mining lease for the Company, having found gold in stones on it. About £1,000 has been spent on the mine. The capital is 40,000 £1-shares, 15s. 6d. being paid up or capitalized, and sales were made on February 9 at 2s. 6d.

The Maybell properties belong to Adelaide, and were until recently in charge of Captain Foster. The North Maybell claim comprises three 40-acre blocks, and there are seven shafts, the deepest vertical being sunk to a depth of 93 feet, and the deepest underlay to 260 feet. About

£2,300 has been paid in dividends, and only one call made. The character of the ore is similar to that in the Kate. The average output is about 22 tons per month. The capital is 40,000 £1-shares, 16s. paid up or capitalized. Sales were made on February 10 at 1s. 6d.

In the Maybell South the men are driving along the water level. There is a big lode, but it is not just now payable on account of the low class ores. About £5,000 has been paid in dividends. The capital is 40,000 £1-shares, 15s. paid up or capitalized, and the last sales quoted were 9d.

Nothing is being done at East Maybell. There is a quantity of rich ore, but not enough to pay. It is suggested that the Kate and Maybell claims should be amalgamated with a view to more economical working.

RISE AND SHINE MINE.

This Adelaide - owned property is pleasantly situated close to the border of the tin country. It is about 15 miles from Broken Hill, in a north-easterly direction. There is a vertical pump shaft 66 feet deep, and a special universal steampump, with a capacity for 12,000 gallons an hour. The shaft struck the lode about 15 feet from the surface, and it continued with slight underlay to the north-west. It varies from 8 to 10 feet in width, and the formation is iron gossan, carbonate, mundic, specular iron, blende, and hornblende. Several tons of ore is ready for shipment. The prospects are promising, though the stuff is at present of too low a grade to be remunerative. As the ground is hard the Manager, Captain Tregoweth, late of Woodside, deems it advisable to get down deeper before driving on the lode, especially as the pump is not adapted for hard ground. The lode in the bottom of the shaft appears to have a regular formation with well-defined walls, and should, in developing, open out shoots of payable ore. Recently the Company secured the claims on the other side on the course of the lode, so that the property now consists of 140 acres; and if the policy of deep sinking should succeed it will make the claim very valuable. No. 2 Shaft, 120 feet distant from No. 1, is on the lode. There is a second lode to the south-east, which seems to be going parallel with and to be in character like the other, and in deep sinking one object would be to command both lodes. In so doing other discoveries may be made, as

there are signs of intervening lodes. The lodes run north-east and south-west, and as none in this particular locality have been tapped there is no special experience to guide in the operations. Samples from the bottom of the shaft recently gave—Galena, 44 per cent. of lead and 10 oz. of silver to the ton; and carbonates 49 per cent. of lead and 19 oz. of silver. The expenditure during the last five months, including purchase of plant, has been only £1,000, and the Company is in a good financial position. It may be advisable to enlarge the Company in order to carry out the vigorous policy justified by the presence of strong lodes so well mineralized. The capital of the Company is 7,400 £1-shares, £1 paid or capitalized, and sales were made at 14s. on February 9.

No. XXIII.

The Lubra is also in the Purnamoota District. It was owned by Mr. Thomas Crisp, of Crystal Brook, who raised large quantities of very rich stuff. The lode at a depth turned into ironstone, but upon getting into hard ground made a little galena and grey ore. It is now owned by a Sydney Company, who are sinking a vertical shaft to cut the lode.

The Treasure adjoins the Lubra. The claim, which has just lately been floated into a Company, was known as Morris's Blow. It has been held four years by the late proprietors, who got some very good ore from it. Some very large slugs of grey ore were found on the surface.

GOLD.

Though principally a silver and lead district the Barrier is rich in tin, and there is a plentiful supply of copper. Gold claims have been taken up in Purnamoota, and it is quite likely that the field may yet be found to be rich in the precious metal.

The only gold mine being actually worked is the Golden Crest at Purnamoota, near Mount Robe, though recently claims in the vicinity have been floated, and will no doubt be shortly worked. Three tons of stone from the Golden Crest crushed at the Woodside Battery yielded 1½ oz. to the ton.

COPPER.

Amongst the most promising copper mines on the Barrier are Pattle's Anna Conda. There are several claims between the Acacia Dam and the Day Dream, the

more likely looking including the Prince Charlie, Colorado, Red Flag, and Badge's. At Mundi Mundi fourteen claims have been recently taken up for copper on Campbell's Creek, and they have very large lodes there. Captain James Dunstan, late Manager of the Great Cobar Copper Mine, has reported favourably on them and taken up leases himself. At the Copper Blow, which is 6 miles north of the recent discovery at the Great Northern, and 12 miles from Mundi Mundi, twelve claims have been pegged out.

The peculiarity of the copper lodes in the district is that they turn into silver at a depth.

DEFECTIVE MINING LAWS.

As so much outside capital has been furnished for the development of the field the state of the mineral laws has more than a local interest. It is to the advantage of the whole district that the ground should as far as possible be simultaneously worked, because there is economy in the largeness of operations, and an equitable contribution to the increased values in fair work. To lock up mineral lands, therefore, is detrimental to the common interests and unfair to individual proprietors, to say nothing of the wrong inflicted on the colony, who parted with the right to the minerals in the belief that the claim would be worked for the immediate and general good. Mention has been made in connection with the Thackaringa mines of the way in which a great portion of the land stands idle through the operation of the Mineral Conditional Purchase titles which are practically freeholds, and it is to be hoped that the Sydney Government will do what is necessary to prevent the further issue of these titles, at any rate without the addition of such conditions as will conserve the public interests. If the evil in connection with the titles already issued be as great as represented it might be worth considering whether a tax should not be imposed in regard to unworked claims which are being improved in value by the expenditure on adjoining properties, but which M.C.P's. are contributing nothing to the general rise in values, nor anything to the public revenue, through the employment of labour profitable to the State.

There is a good deal of shepherding going on in the district. On a claim being pegged out application is made for a lease, and such is the expedition of the Sydney authorities in the centennial

year that it takes eighteen months to issue the lease. The lease contains conditions for the employment of an increasing quantity of labour, but until the lease is issued no labour need be employed. That gives eighteen months clear of expenditure. But an ingenious device is used to avoid an evasion of the conditions and yet to retain the claim without the employment of labour—that is, to shepherd it without the authorities being able to prove shepherding. The application for a lease is made by a member of a party or Syndicate in his own name, who, when the lease is issued, allows it to be forfeited for non-payment of rent, meanwhile taking care that a second member has pegged it out and put in a proper application for lease. As it takes another eighteen months for the issue of the lease, the claim is held three years without any expenditure on labour, and at the end of the three years the process may be repeated by a third member. I came across the other day the following pertinent paragraph in the *Silver Age* of January 11:—"Between Acacia Dam and the Day Dream there are several good copper lodes, and some most flagrant violations of the labour conditions can be noticed. One claim in particular has been shepherded by the same people for four years. They have allowed one lease to lapse, then another of the same party took it up again, and during the time no work has been done. The Minister for Mines promised last year that he would bring in a Bill that would meet such cases and compel owners either to work or abandon the ground. The present system of leases has greatly retarded the general progress of the district, and it cannot be altered too soon for the future welfare of the Barrier. Two-thirds of the country is absolutely locked up from legitimate prospecting."

MISLEADING THE PUBLIC.

Genuine mining needs no angel to recommend it, for obviously it pays to take the public into confidence. The shrewdest Barrier Rangers see this. Undoubtedly there are some who for a miserable mess of pottage would sell the public, but only to learn on subsequent reflection that there is wealth and wisdom in preserving a good name. The farseeing men of the Barrier will tell you that the progress of the field is profoundly related to frank dealings with the public. So long as everything is straightforward there will be generous contributions for the de-

velopment of the field ; but if the public should find that they have been led by misrepresentations into worthless claims, or into a waste of money, there will be a reaction, in which none will suffer more than the Barrier people themselves.

The object in connection with claims is to improve their selling value, and as the test of properties is the dividend-paying power, means are taken to make the public believe that they have it largely, though undeveloped. The channels of information are the mine and the markets, and it has become quite an art to charge those channels skillfully. As to the mine itself, it is of great consequence to connect the locality with some magic-working name. The Broken Hill lode is now the spell to conjure by, and like a man suddenly made rich, it is astonishing the number of connections there are. But in the matter of naming the mines the Warden ought to have some discretionary power. Not only are names repeated, so that confusion arises, but the names of paying or promising properties are used with the addition of the word "extended," "west," and so on, misleading the public. In one case on the Barrier the extended claim is 9 miles from the original, and in others there is not the remotest connection in a mineral sense. Where there is a well-defined and known line of lode no claim should be called by it unless there is a proof of its relationship to it. Claim proprietors should be obliged to register the name, and the Warden should have the right to veto any proposal calculated to mislead the public.

Attention has been called to the illegality of Syndicates consisting of more than twenty shareholders, and to the peril of sham paid up shares. The latter is an attempt to mislead the market. Something might be said as to the way in which claims are handicapped before they are proved by the large sums paid to the proprietors, for though every thing being above board the shareholders have no right to complain, the practice is injurious to the district. When a Company, whose shares are seven-eighths paid up or capitalized, has out of a capital of £70,000 to £80,000 only £2,000 or £3,000 to start developmental works with, it is obvious that justice is not being done to the average claim. But the object of this sham paid-up shares custom is to conceal the true condition of the Company. The promoters practically say, and mostly before the claim has been

proved, it is worth all that is represented by the nominally subscribed capital, and in order to make the public believe so they will render it as difficult as possible to find out what is really paid on the shares. There are many claims on the Barrier that promise to pay handsomely on money expended in honest skillful development, but will never pay on the fictitious values and nominal capitals. To a member of the public who has expected to see on a £70,000 or £80,000 capital claim a mine it is a slight shock on visiting it to find that, notwithstanding the comparatively small amount which can be called up, there is one waterhole, one windlass, and a rope !

MINING MANAGERS.

The Manager of a mine is commonly called captain like the master of a ship, and there are many points of resemblance between them. Both are entrusted with life and property, both are often at a distance from the managing owners, and both have opportunities of doing great mischief through incompetency or misconduct. But the master of a vessel, if it is an insignificant wood craft crawling round the coast, must be certificated as to his fitness for the office, and the manager of a mine, though charged with hundreds of men and property worth millions, need have no testimony to his competency or integrity. Usually he has ; but the testimony of competency is not given by any recognised authority. Now it is suggested with much force of reason that managers, like surveyors, should be required to pass an examination as to professional fitness, and produce testimonials as to personal integrity from a duly constituted Board, and that there should be grades of certificates. Obviously the Manager of a small claim where there is no machinery does not require to be so proficient as the Manager of a mine where the operations are conducted on an extensive scale. It is a distinct advantage, and should be recognised as a necessary qualification that a Manager should be able to assay. In the earlier history of a claim it is desirable that the captain should save the expense of consulting an assayer as to every new sample that is met with ; while without usurping the functions of the assayer there are times when it is extremely inconvenient to send samples to assayers, and when it is highly important to check the assays of others.

The corollary to the acceptance of a certificate of competency is a liability to its suspension or cancelling on proof of a charge of incompetency or misconduct, and the advantage to the public interest from this aspect of the matter would not be small. It cannot be overlooked how absolutely the Manager must be trusted, because not merely of the general unfitness of Directors to manage the mines, but because of the distance from the scene of operations and their slight knowledge of the local circumstances.

On the Barrier there are two classes of Managers. Foremost is that of the veterans of many fields, the world-travelled men, and the miners on time-honoured lines. They renew on the Ranges friendships made in Cornwall and California, New Zealand, Tasmania, and other parts of Australasia. Just now the "Merican expert" is the prominent man. The second class comprises the young Australians with energy and ambition, who are fast stepping into the charge of important claims.

The salaries of Managers range from £200 to £600 a year, but the perquisites are sometimes very considerable. A Manager in the vicinity of Broken Hill or Silverton can make much money by speculations, but if his name is one to charm the public with in prospectuses he can do well by reporting upon claims, each report covering a fee of £25. A happy few have during the present boom been swelling their salaries by at least £100 a week, while the result of their timely speculations are told in five figures.

NO. XXIV.

IMPROVING THE CONDITIONS OF RESIDENCE AT BROKEN HILL.

Enthusiastic Wilyamaites speak of the nearness of the time when Broken Hill will be a city, the population being counted in tens of thousands. As a proof of their earnestness it would not be too much to ask them to show a little more energy in the direction of improving the conditions of residence for the multitude of precious lives worthy of the coming rival of Ballarat. Some little attention is being given to public matters, but they mostly relate to the pockets and not the personal comfort of the people. Urgent as undoubtedly are the complaints as to telegraph and postal business, equally deserving of spirited treatment, are the

abuses arising out of the absence of municipal institutions.

A CORPORATION WANTED.

The most immediate want of Broken Hill is a Corporation, not merely to make roads, supervise the building of the town, and attend to the sanitation, but to cultivate a public spirit and give expression to common interests. If there is one thing more than another that distinguishes the Victorian it is the interest he exhibits in public matters, and the provision made in respect to municipal institutions are in this connection significant. The whole of the colony is divided into Shire Councils, towns of a certain population constituting Boroughs or Corporations; and one recommendation of the machinery for the establishment of new Boroughs is that it is automatic. Immediately the population of a township attains to the stated minimum number, without any wearisome applications to the Government or tedious delays, it becomes a Borough. Now Broken Hill belongs to no Shire Council and cannot get a Corporation granted. The Government would probably have given the people, ere this, the necessary measure of local control but for the difficulty of settling the boundaries.

It has been previously mentioned that the proprietors of the mines object to them being included in a municipal area, from the natural dislike to pay taxes; but it does not seem altogether fair that they should participate in the general benefits and contribute nothing to the common burden. They will share in the advantages of good roads, and will it be contended that they will not profit by the improvements made in the condition of residence? These will tend to attract more and better labour to the district, to conserve the energy, and raise the tone of their employes, and generally to reduce the cost of production. It may be said, and with truth, that the site of the town is too near to the mines, and that the danger of fixing it so close to stacks pouring forth leaden and arsenical fumes was pointed out before it was surveyed. Broken Hill, which is now situated in a hollow, would have been better built on the plain to the south of the railway line, or on the higher ground to the west of its present position, but the authorities allowed the people to have their wish to settle as close as possible to the Broken Hill Mine. Though the argument of the mine's representatives may be

powerful as against their being unduly taxed or severely dealt with through the proximity of the smelting operations to the town, it can scarcely prevent the Government from including the properties from the municipal area, which as is the case at Silverton, usually covers about 50 square miles.

RISKS OF FIRE.

Excellent roads could be made at Broken Hill, slag being plentiful for foundations and metal for crowns; and there is no reason why lines of trees should not shade asphalt footpaths there abating considerably the nuisance of dust-storms. A gas plant has been ordered by a Company, and soon the streets may be expected to be lit up at night. Sanitary matters have been discussed in a previous letter. Something will, however, have to be done as to the erection of buildings in the town in view of the risk of fire. Insurance offices are charging now as high as 70s. per cent., occasionally 100s., while there are some risks they will not accept at all. If a fire took hold of the eastern side of Argent-street, near the telegraph-office, a dozen buildings to the south would almost certainly be in a half-hour destroyed, with nothing but charcoal as the remains of most of them. Where, in the absence of a large supply of water and of means to use to the best advantage what water is available, a fire would stop it is impossible to say.

WATER SUPPLY.

The water supply is a question of vital import. Though it costs 1s. 3d. for the luxury of a shower-bath with brackish water, yet no greater inconvenience is just now being felt as to a supply for domestic purposes than is experienced in many country townships. Certainly water is an expensive item in the housekeeping bill, and a tank of good water is worthy of a padlock being affixed, but it is now cheaply and easily obtained. There have been three good seasons. The soakage water, which is obtained from Stephen's Creek, is not so clear and wholesome as the abused water through the Adelaide pipes; and for the stranger to drink much of it is sure to be productive of profit to the medicine man. Still it is good water for the bush. Rain-water is mostly used in the houses for drinking purposes, but, with the leaden fumes from the mine stacks sweeping over the roofs with every easterly wind that blows, it is not altogether attractive. It

is obvious that there is now a need for a pure water supply, but how much more urgent will the need be when the district has to pass through a drought? The evidences of the last period of distress, extending over three years, are still to be seen in the skeletons, distributed in the ranges, of animals who perished in it. By that time, too, Broken Hill will probably be a large city, and a water famine would be a terrible trial. Railway communication might modify its worst forms, but the thought of the suffering that would be inflicted should urge the people to speedily adopt a wise water scheme. Several proposals have been made, the two principal being the construction of a dam in Stephen's Creek, about 8 miles distant, which would be comparatively speaking, a very inexpensive plan; and the conveyance of water from the river about 70 miles distant, or from one of the nearest lakes. The latter scheme is not fully formulated, yet, but it will find warm advocates if the elevations do not render it too expensive to work. Mr. Stewart, a well-sinker of twenty years' experience, with a considerable reputation in the district for his discoveries, believes that a good and sufficient supply can be had by sinking within 4 miles of the township.

LAND TITLES.

Not until the land question has been more satisfactorily settled can it be expected that comfortable residences will be erected. Being over a thousand feet above the sea, Broken Hill has a climate which, while trying in the summer, has points in its favour. For nine months of the year the air is keen and bracing. During the other quarter it is intensely hot during the day, but with scarcely an exception cool at night. More rain falls in summer than in winter, and the tropical storms have charms for those fond of weird effects in thunder, lightning, and rain. It can be easily seen that for protection against cold in winter and heat in summer, good houses are required, but good houses are rare, and will continue so until people are in a position to get monetary assistance to build them with. The present titles are of too conditional a nature to warrant either Banks or Building Societies advancing money for the erection of permanent improvements. It is said that the Banks in Victoria have recognized the titles, but probably there was some difference of circumstances.

It must not be understood that the question of titles is as unsatisfactory as it was a few months ago. The course is for a man to take out a business licence, for which he pays £1 a year, and to peg out his quarter-acre business block in the township, or acre residence block in the suburbs. On complying with the mining regulations as to personal residence, he can apply to the Land Board to assess the value. The Board having stated the purchase-money, the amount is paid over to the Government, and a receipt given. It takes the Land Office two years to issue the title. In the case of Broken Hill, after a number of persons had lawfully pegged out blocks and erected buildings thereon, a proclamation was issued on August 6, 1885, declaring the land in question to be a Government reserve. Evidently some one had blundered. On September 23 last the proclamation was revoked. The coming into operation of the cancellation order was watched by some astute persons, who immediately repegged and jumped the blocks plus the buildings. Judge Backhouse, upholding the Warden's judgment, decided in favour of the original holders, seeing that they were tenants at will of the Crown while the lands were a reserve, and that the tenancy could only be terminated by a notice, which had not been given. This Portia-like judgment brought dismay to the Shylock jumpers. Where a man is evading the spirit of the Act there is virtue in "jumping." Just now, for instance, there is room for healthy jumping upon some of the idle claims; but what would be thought of taking away the ground belonging to a Church because in the process of putting on it a better building, which was on the spot, the old structure was taken off and the land was then left for a time unoccupied? Yet that is the kind of thing which occurs in Broken Hill, and the jumper usually employs force to substantiate his claim for the time being. Scenes solemn, grotesque, comic, and painful have been witnessed in the town through jumping, and consequent sieges, quarrels, fights, and litigation.

From one point of view it is a good thing that there is so much trouble and delay in getting a title. Mining townships spring up with such rapidity, and men are so intensely sanguine that if the titles were immediately issued, costly buildings would be erected before the permanence of the place was assured. That more than two or three assessments

by the Land Board have not been made in Broken Hill to-day is not the fault of the New South Wales authorities for applications can be made at any time, and the Board holds monthly meetings. A year ago the outlook on the Barrier was not as cheerful as it is now, and holders postponed the applications. Since the boom has prevailed all spare money has been used to dabble in stocks. Besides that, there has been no difficulty in selling land without the title, and those who have had land for sale have seen no necessity to outlay money, while those have bought have not left themselves filled coffers to replenish the public treasury with. The Government are in no hurry to assess the land, because the longer the applications are postponed the larger will be the assessment. Still the Broken Hill people appear to be making a mistake in postponing their applications. The highest price that Silverton land was valued at was about £95 a block, but a Broken Hill block some two or three months ago was assessed at £250, and it is quite likely that for the best blocks the holders will now be required to pay as high as £400.

GOVERNMENT EXAMPLE.

As a preliminary movement in the direction of improving the conditions of residence at Broken Hill it should be insisted upon that the Government of New South Wales set a good example in the erection of suitable premises for the transaction of public business, in the provision of adequate staffs to do the work, and in the supply of the means essential to make good and intelligent citizens. At present it would be hard to find any business where the premises are more wretchedly unsuitable, any staff where from the Stipendiary Magistrate to the cadet the members are more ill-considerately overworked, and any town of its value to a Government which has been more neglected than Broken Hill. Silverton has latterly been attended to, but it has the same grievances under the two first heads. Recently the Sydney authorities have promised amendment as to the Telegraph and Post-Offices, but they still seem to have but little idea of the actual requirements. South Australia will no doubt facilitate the telegraph business by the erection of another wire to Cockburn. It is a wonder that Silvertonians have not agitated for telephonic communication between Broken Hill and their town. It would lessen the

telegraphic pressure and increase the business of their town. It might tend to make it a place of suburban residence to Broken Hill. At present it is hardly likely to become so, owing to the fact that a good deal of share business is done at Broken Hill in the evenings, but if the telephone could be used for that purpose a number of business men whose families are not yet on the Barrier would take them to Silverton. It is gratifying to know that the educational facilities provided at the public school, one of the masters of Prince Alfred College, Mr. Evans, is about to add those of a high-class establishment, but something should be also done in the direction of giving the town an Institute, School of Mines, and Savings Bank.

NO. XXV.

A PROFITABLE FIELD.

It may be gathered from the account given of the more important claims what is the extent of the field. Including the tin district 2,800 applications have been made for leases of blocks of usually 40 acres. There is a good deal of shepherding no doubt, but on a very large number of claims work is being carried on. The expenditure for labour on them is possibly at the rate of over half a million sterling per annum, while it cannot be much less than that amount for machinery, stores, and other lines. It is, of course, impossible to make any but a rough estimate on the matter, and yet it is only by this means that some idea can be conveyed of the position of Barrier mining.

During 1887 the imports into the district was £526,152, and the exports (excluding live stock *in transitu* from other colonies) £684,594. Of this amount £522,455 was in respect of minerals, made up as follows:—Argentiferous lead, £462,442; copper ore, £170; gold ore, £30; silver ore and galena, £59,472; and tin ore, £341. Remembering that the number of claims which have passed beyond the prospecting stage into active mining may be counted on the fingers, and that, therefore, the bulk of the expenditure is on permanent improvements, the figures may be considered as eminently satisfactory. A return of 50 per cent. on the capital while it is being spent on developmental works will be acknowledged by most to be decidedly encouraging. In view, however, of the fact that an importation of capital has been taking place into the

district for the last three or four years, it may be objected that this is too sanguine a statement as to the situation. On the other hand it must not be forgotten that it is only quite recently that money has been freely poured into the Barrier. Pioneer prospectors can tell pathetic stories of the extreme hardship suffered in the early days, when the Rangers who believed in its great future were regarded with suspicion as having crossed the border of allowable enthusiasm, and who were therefore not to be trusted with the capital they sought. Contending with poverty, drought, scarcity of provisions through the state of the country, and working from dawn to dark, sustained by a faith in the future of the place, they command our respect, and it is gratifying to now meet them enjoying success. Even later on, as Mr. Elliott, of Broken Hill (who, by-the-way, has had an extraordinary experience in accidents, travel, and adventure) wrote:—"Many have left the field in disgust, but it is no use for feather-bed pioneers to come up to Silverton. The field wants hardy bushmen, who are not afraid of the pick and shovel, can live on mutton and damper, and sleep the sleep of the just on a round log or a soldier's antbed." It is only recently, be it repeated, that capital has been freely sent to the Barrier, but meanwhile the output has been steadily advancing, so that after every allowance has been made it must be found that in the initiatory stages of the Barrier field it has made a generous return on the money employed to develop it.

Though during the present boom it may seem to cautious natures that if too much money is not being sent to the Barrier, money is being obtained too easily for ventures there, it is right to bear in mind the estimate which Mr. Warden Brown has made of the exports during the present year. He fully anticipates the shipment of silver-lead and tin at £1,000,000. Such a production, which must be accompanied by a great increase in population and expansion of trade, will still give a handsome return notwithstanding the increased capital employed.

HOW LONG WILL THE BOOM LAST?

Daily the question is asked—sometimes out of curiosity, but oftener with trembling interest—"How long will the boom last?" The share mania has become so general that it would be as hard to find a

man in Adelaide without scrip as it is to meet one on the Barrier uninterested in a Syndicate. When, as I learn on my return to Adelaide, Bank Managers visit the Pirie-street Corner to discover who amongst their customers with overdrafts are "plunging," and to engage in judicious speculation themselves; when storekeepers are found opposite a certain "mother Church" to catch their debtors who use the grocery money for shares; when wives cannot get their house-keeping portions through the passion for fortune-making in scrip; when men buy according to the market and without any proper idea of the mines, and when publicans and paperhangers, engineers and labourers, Customs and land agents, sea captains and cocks, and indeed almost all sorts and conditions of men turn jobbers and brokers, it can be easily understood that it is an all-important question as to how long the boom will last. Without indulging in any attempt at prophecy in the matter, there seems to be one or two serviceable inferences from what has been already said.

It can be observed that the Barrier field has been sufficiently proved, and has such a hold on the public mind that more or less the boom will be permanent. There are many mines in the district which cannot fail to gradually improve in value, notwithstanding that the market may ebb and flow from day to day in respect to the stocks. With the progress of events these mines will become known to the more intelligent speculators, who to a knowledge of the market, adding through the facilities offered for personal inspection, a knowledge of the mines, will carefully weed out from their holdings indifferent stocks. In regard to these the boom will not last long, and perhaps many may suffer loss and mortification. To what degree the boom will be sustained as to the intrinsically valuable properties must, of course, depend upon outside circumstances, the condition of the money market being probably the most important. If, as it is believed to be the case at present, capital continues to come from England, America, and elsewhere for judicious investment in Barrier stocks, there will be an increasing movement in the direction of high prices. Though the harvest-money of South Australia may have something to do with local investments it cannot affect to the extent that some believe of it the Adelaide sharebroking, which largely depends

upon the state of the Australian money and share markets generally.

THE FUTURE OF THE BARRIER.

Though only in the infancy of its development the silver-field is undoubtedly established. The tinfield is not quite so amply assured, but there is reason to believe that it will hold its own. It may even prove more remunerative in proportion to the capital expended upon it than a similar extent of the silver-field. There will be before long a respectable number of dividend-paying mines, and meanwhile and subsequently great activity will take place in securing and working new claims. With the improvement in the conditions of residence on the Barrier which the energy of an enterprising people will, notwithstanding apathetic and shortsighted Governments, speedily bring about skilled labour will become cheaper; and with the enlargement of the market for merchandise prices will be brought to a minimum, so that the dividend-paying power of all the mines will be increased.

In two or three years that portion of the Broken Hill lode which has so far been traced will probably support a city of 20,000 to 30,000 people, while the outside mines will help to make Broken Hill a capital of considerable importance as to size, population, wealth, and trade. It will be the centre of the Barrier trade. It is amongst the possibilities that it will be connected with the New South Wales railway system, and its incidental association with the river will make Broken Hill an object with our river traders. At any rate, Broken Hill will be the head-quarters of the financial business of the district—there will be its market; there its depots and distributing agencies; there its manufacturers and importers; and there its means of intelligence and channels of enterprise. The share market of Broken Hill will grow more and more independent of Melbourne and Adelaide, and the importing business be less and less done by outsiders, large houses being established to order direct from the world's markets.

Though the Barrier people now see, except as to the protective tariff of South Australia, nothing but advantage to arise to them from annexation to that colony, yet while continuing friendly, they will gradually be weaned away from the idea at first by the difficulties in the way of carrying it

out, and then by the more attractive and effective cry of separation with the view to the constitution of another colony. The feeling that they have nothing in common with Sydney and distinct interests to those of Adelaide will render them more and more self-reliant municipally and daring politically. How far they may look for success it is impossible to say, for, besides the ordinary difficulties, legion is their number in the way the capitalists whose money has developed the district may introduce special complications. The cry may, however, be effective, and in the end the New South Wales Government be aroused to perform the duties which, had they risen to the occasion, would have been seen from the first as privileges.

OUR TRADE.

Some one perhaps is asking, "What about our trade?" You have soundly rated the Government for obstructing it and diverting it to Sydney, and now you speak of an ultimate and permanent diversion from both Adelaide and Sydney."

Yes. Emphasize the word "ultimately." And that seems to be the general impression. It also seems natural. Mark, that "ultimately" may mean years, and is not the trade for an indefinite period of years worth the abolition of redtape? Since my earlier letters on the subject (though prior to then the idea had existence in the official mind) the Customs authorities have transferred the Sub-Collector from Silverton to Terowie in order to expedite the payment of drawbacks. It appears that owing to the irritating and expensive break of gauge at Terowie goods cannot be sent under bond to the Barrier in sealed railway trucks from Adelaide, because the goods have to be transhipped into other and smaller trucks at Terowie. Hence the officer has been stationed there to seal the trucks with drawback goods. Immediately he forwards the drawback papers in connection with the goods therein for the payment of the rebates. Though this is an improvement it has not met the case effectively. I have heard complaints that our merchants are not receiving the consideration from the Government that the special circumstances warrant. Though Customs regulations contemplate repayment in full of *ad valorem* duty, merchants complain of losing two or three per cent. by drawbacks. Why, further, should the Customs charge the exporter for the time of the officer employed to see

the goods packed? With just as much reason an importer should be required to pay for the time of the landing waiter who examines his invoices and inspects his goods; while for the remission of the impost there is certainly a greater argument from expediency for a protective Government to assist our merchants in a time of depression to increase the trade of the colony. It would certainly facilitate business if the Adelaide Government would not copy the notoriously bad example of the Sydney authorities in overworking the Customs representative. In a galvanized—even, I was going to say, for such it is in summer—building 20 feet long, 12 feet wide, and 8 feet high, Mr. Mooney, the New South Wales Sub-Collector, who was at old Thackaringa in the early days, slaves away, minus coat and waistcoat and regardless of official hours, to avoid delay; and Mr. Harvey, the Sub-Collector for South Australia, shared his office and apparently his fate at Silverton, having to work from 6 in the morning till 11 at night.

The railway authorities have shown a desire to help the district, having agreed to the suggestion as to a through night-train. Though the facilities as to the goods traffic are better than they were locally expected to be, the system is regarded as too cumbersome, and yet it is admitted that the department is quick in finding out mistakes. The freight tariff works badly. Owing to the anomalies under the division of goods into classes it costs £2 a ton more to bring certain merchandise by railway now than it did to convey it by bullock teams in the old days. A simple weight or measurement tariff would meet the wishes of the Barrier traders and be to the advantage of our commerce.

Returning to the discussion about the ultimate deviation of trade its date may be postponed by the Adelaide people acting with wise judgment, and it may on the other hand be hastened by an ill-considered action. In any event, is it not better that our merchants should be helped to get a footing there, for then they may establish branch houses on the Barrier, which, while importing direct, may reserve a share of the profits for the principals in South Australia?

CONCLUSION.

The Queen Victoria tin claim ends in a granite gorge. On one of the steep faces is an inscription, as to which it is hard to say how it came there or what

it means. Amongst the representations are those of a leaf and the sun. How was the face reached, and with what tools did the cunning workmen of old inscribe the 50 or 60 yards occupied by the hieroglyphics? Equally difficult would it be to say "what smiths and in what furnace rolled copper and iron lead and gold" in such rare combinations as are found at the Barrier. At first the phenomena were as little understood as are now the hieroglyphics referred to. Indeed there are now more facts concealed than revealed to us in the rocky symbols above and below the surface; enough it is that men can read the promise of a full sun of prosperity.

A shrewd, observant friend of mine, who has made repeated visits to the Barrier field, says that each time he goes there he discovers afresh how little he knew about it. The geologist and mineralogist will find it a perennial source of information, but he who comes must be prepared to learn anew. When the mining experts went there first in the pride of their extensive experience they were completely at fault. Did not one, nay several, weigh Broken Hill itself in the balances of their mature wisdom, and find it wanting in mineral wealth? All previous experience seemed but to mislead. In the early days men would not look at copper-stained stone, but when the despised metal was found to keep company with silver its verdant tints became as popular as those of spring-time are refreshing.

It is unnecessary to refer again to the finding of chlorides of silver and argentiferous kaolin, but there is one circumstance worth mentioning here. In the silver-bearing districts of America, I

understand that each has a distinctive class of ore, but the feature of the Barrier is in what may be termed the cosmopolitan character of the vein material. Those who have patiently read the particulars given of the mines must have observed how that all classes of argentiferous formation appear to be found in rich profusion in the field. It would seem as if there was some providential arrangement in the fact that the pioneer silver-field of Australia should be one to furnish not only wealth itself but in a liberal education in a wide range of silver mining, the means of wealth in other parts of the continent. For probably one of the greatest advantages which South Australia will, for instance, enjoy from the development of this interesting field, will be in the training of men who shall reveal to us in the earth's veins in our territory such riches as shall give, without artificial aids, large population, cities, markets, manufactures, and abounding prosperity. Already we know that South Australia is a silver-bearing country. From Blinman in the Far North and Mount Victoria in the north-east to Rapid Bay in the south and Franklin Harbour in the west indications of argentiferous lodes have been found. Yet during the years of our depression we have left untried these sources of labour and profit for want of knowledge. The Barrier field will grow and its trade increase; we may keep it or may lose it; but if we are enabled by the experience gained there to convert South Australia into a series of extensive silver-fields the Barrier experience will be of greater value to us than the Barrier trade, though its value may be estimated in millions.

The Adelaide Observer.

THE LARGEST WEEKLY NEWSPAPER PUBLISHED IN THE COLONY

(containing 48 Pages), Published Weekly, Price 6d. per Copy, or £1 2s. per Annum, in advance (including postage).

Persons desirous of becoming Subscribers to the above Paper and securing its regular dispatch to any address should forward, with their remittance, the annexed Order signed with full address.

W. K. THOMAS & CO.

MESSRS. W. K. THOMAS & Co.,
Proprietors of "The Adelaide Observer,"
Grenfell Street, Adelaide.

Herewith please receive £1 2s. 0d., being One Year's Subscription, in Advance, to "The Adelaide Observer," which please forward until further notice to

THE BARRIER TIN FIELD.

No. I.

COMPARATIVE VALUE OF THE FIELD.

Events move rapidly on the Barrier, and the unexpected appears to happen there with more regularity than elsewhere. Hence the philosophic indifference to change which the Barrier resident acquires, an indifference that equals the equanimity of the ebony witness in the celebrated Tichborne case, who, to Sir John Coleridge's famous question "Would you be surprised to hear, &c.," replied "I should not, Sir John, be surprised at anything." Nothing astonishes the case-hardened Barrier Ranger. He has seen the rising of Silverton like a foaming sea in a storm, and marked its subsidence into a quiet respectable hum-drum town; he has seen townships spring up in the vigour of a new and robust life, and watch them wither and die like sheep in a drought, and he has witnessed the growth of Broken Hill, appearing first like a little cloud "no bigger than a man's hand" and then overspreading the country and raining its wealth into distant parts. It seems impossible that anything stranger than what has been can be; and, calculating on the uncertainties of mundane things, he plays the game of life with a presence of mind begotten only of rare experience.

If therefore what some enthusiasts say should prove true as to the Barrier tin-field becoming of greater value than the Barrier silver-field, it would not surprise him. It would interest him, for he would not be true to his instincts and his reputation if he did not make money out of it. Still he would not be astonished. That the last should be first and the least greatest is not, as previously intimated, a new experience at the Barrier. Nor would he be affected by the fact that it did not seem probable. With him the only real test is time, and that proves all things. He is therefore not much concerned with enthusiasts so long as they do not affect the market, but immediately they do he turns upon them his keen

faculties with the professional inquisitiveness of a surgeon at an autopsy.

PERMANENT AND PROFITABLE CLAIMS.

Great Britain, we are told, became early famous for tin and oysters. The Barrier has become famous for silver, but whether it will secure an equal reputation for tin remains to be seen. "The tin-bearing rocks have," says Mr. Wilkinson, "been proved over an extent of country about 28 miles long in a north-north-west direction and 3 miles wide, but it is likely to be found over a much wider area, for the same formations are seen throughout the greater part of the Barrier Ranges, as far south as Thackaringa." It can scarcely be doubted but that in this field of some 84 square miles will be found several permanent and profitable claims when worked on a sufficiently large and economical scale, but it is too early to pronounce as to the payableness or otherwise of some others. Certainly the recent discovery of water at a moderate depth on the Euriovie property is distinctly in their favour, as it may be said to dispose of what was considered to be a great drawback of the field. The success of the Euriovie machinery will have an important bearing on its future, and, judging by the great engineering ability of Captain Black, to which there are numerous testimonies, there seems to be no reason to believe that the machinery will be other than successful. Should, however, an accident occur to render it less serviceable than intended to be, a check will no doubt be given to the development of the field, but it will only be temporary, because the Victory Company, who have a fine property, which is being well opened up by Captain Oats, will erect machinery, profiting no doubt by the experience of the Euriovie Company. Then the development of the adjoining silver-field has a beneficial effect. Not only is public attention drawn to them conjointly and capital liberally furnished, but the cost of production is largely reduced. Skilled labour is attracted, and

stores are supplied at moderate rates, while the charges for freight on machinery and shipments are materially lessened. The Poolamacca mines are nearly 50 miles from the Silvertown and Broken Hill tramway, but are still in an infinitely better position than before South Australia gave to the Barrier the railway communication. It is now proposed to extend the tramway from Broken Hill to Euriowie, and this will be another distinct advantage. As some might ask, why extend it from Broken Hill and not from Silvertown? it may be mentioned that the points in favour of the former are that there are no engineering difficulties, the road being practically level, that an extension is preferable as regards working to a junction, and that Broken Hill is the centre of the Barrier trade. For Silvertown it might be urged that a branch line would save a few miles, but it is pointed out on the other hand that that would be more than counterbalanced by the engineering difficulties to be surmounted in the shortest route. Taking all the circumstances into account it is safe to say that before long there will be a permanent and profitable tinfield on the Barrier.

THE POSITION OF TIN.

The prospect of the Barrier tinfield being profitable is made better by the condition of the tin market, which now wears a most cheerful aspect. It is not merely that the price (£166 15s. a ton) is satisfactory, but that there is ground to think it has somewhat of a permanent character. It is found that with a constantly increasing demand, which has been rapidly overtaking the supply, the tin districts are almost as limited as they were a generation ago. The world's supply is practically obtained from Cornwall, Straits Settlements, and Australasia. Considering—as it has been pointed out—that the richest portions of the field have been most persistently worked, and the output forced to the outside limit during periods of inflation, the total quantity which may be expected from Cornwall, even when encouraged by the present high prices, cannot materially affect the market. In the Straits Settlements the output from the alluvial workings has, we are told, increased nearly 400 per cent. during the past ten years, but the question of the continuance of these supplies is very problematic, and the existence of lodes, which alone gives reliable hope of permanency, has not yet been demonstrated

from actual explorations. The third main source—namely, Australasia—shows more signs of readiness to respond to the increased demand than either of the two preceding. It is just over a quarter of a century since any considerable quantity of tin was raised in Australasia, although the existence of the metal here had been known since 1853, when it was discovered by some Cornish miners whilst searching for gold. It was not, however, until 1870 that proper prospecting was made for it. Signs of comparative exhaustion may, it is said, be now found in connection with the productive alluvial deposits of New England, and in Queensland and Tasmania, but with a diminishing supply from the alluvial there is an increased activity in the development of tin lode in those same districts. In the course of a few years the Northern Territory will furnish a good tinfield; but meanwhile there is an opportunity for the Barrier to take advantage of a market calculated to encourage the speculative public to thoroughly develop the field.

HISTORY OF THE FIELD.

“It is (writes a Barrier Ranger) upwards of three years since discoveries of tin were made in the Barrier Ranges, at the northern end of the argentiferous zone; but very little attention was paid to the matter, partly because the silver discoveries of the same region were so sensationally rich and extensive, and partly because the new tinfield was considered to be so far from a market for the ore that it was impossible to make it pay. The absence of water in the district was a serious obstacle to the progress of the Poolamacca tinfield, and the absence of any machinery within reach kept the lodes unworked for upwards of two years after their discovery. When, however, the leases began to issue to the applicants, and it became necessary to fulfil the labour conditions on the mineral areas, a few prospectors set to work to give the lodes a trial. Among those who thus early made an attempt to make the mines pay were the brothers Pearson, who had an experience in tin-mining in New England, and Messrs. Murray and Sinclair, who sank a shaft on the Cobar Company's ground. The Messrs. Pearson carried down a shaft on the lode in what is now the Caloola Company's lease a depth of 40 feet, and very rich ore was obtained, some of which was rudely dressed and sent to Launceston, where the ore was sold at about 15s. per unit. After this

trial they applied for suspension of labour for six months, in order that the cost of carriage might be cheapened in the interval by the approach of the railway. The Melbourne Silver-mining Company, under the management of Mr. Greenwood, made an attempt to work their blocks at the extreme north end of the field a short time after the Messrs. Pearson, but the absence of water compelled them to abandon the field for a time. A second Manager was, after some months, sent to resume operations, and on this occasion experiments were made in calcining the ore, with satisfactory results. The large tin crystals contained in the greisen matrix, after being heated to redness, tumbled out and were collected for bagging. This Manager also erected a dolly and treated a quantity of the richer ore in that manner; but when the first shoot of ore disappeared, about 10 feet from the surface, the Directors gave orders to stop the work. The deepest shaft on their ground was about 30 feet. Thus far their efforts acted as a deterrent against any more tin-mining in that district.

"But the present activity commenced about fifteen months ago, when Mr. Johnstone began to work the leases now comprising the Lady Don. This pioneer resolved to make the enterprise pay, so he applied the drill and the blast to the stanniferous dykes, and was rewarded by finding rich seams of nearly pure oxide of tin, distributed irregularly through a formation about 14 feet thick. So confident were numbers of mining men of the ultimate value of the discovery that they formed a Syndicate to purchase the property, and this Syndicate was shortly afterwards transformed into the Lady Don Company. It was not long after this, and just over a year ago, that the Cosmopolitan Company was floated to work the claim of the original prospector Brooks, near the north end of the field. At this time there were thirty-eight leases of 40 acres each applied for on this tinfield, and almost all these are now more or less noted for their richness. The Mount Euriovie blocks had been but slightly prospected, and the Mount Bunchikana had been quite recently pegged, but there were not a dozen men on the whole field.

"It is a matter of history that a few months before this epoch a well-known character on Barrier, being in Sydney on business, made an effort to sell the Mount Euriovie blocks for £600, and in order to accomplish such a feat he had taken the

precaution to provide himself with the customary slug on which to travel. He went from one broker's office to another in company with a Sydney agent, but was quickly shown the door in every case almost as soon as the slug of tin oxide was produced. They had seen too much of that sort of thing, they said. Those same blocks are now valued, as per daily share quotations, at £286,000.

"Notwithstanding these comparative failures, the field was visited by Mr. J. S. Reid, then proprietor of the *Silver Age*, who took Mr. Sinclair's blocks in hand, purchasing from him what is now the ground of the Mount Euriovie Company. He then proceeded to Adelaide, where he had become well known through his newspaper as a firm believer in the value of the Broken Hill mine. He had correctly prophesied the steady rise in the price of this stock to the present phenomenal figures, and the Adelaide mining investors argued from this that Mr. Reid must be a knowing one whose opinion must be worth having upon mining matters on the Barrier. Accordingly, when he offered a fraction of his interest in the big tin mine in forming a Company of 16,000 shares, the whole were allotted in about three hours after the list opened at £2 10s. per share. Shortly after the Euriovie was floated, the Victory mine was discovered by Messrs. Porter and West.

"In the beginning of August of the present year a rabbitier named Keough, having seen some of the tin ore from Poolamacca, thought he recognised a similar mineral in a dyke of greisen in the Waukaroo Paddock of Mount Gipps Run, about 30 miles north of Broken Hill, and about 16 miles nearer than the Euriovie field. He had the sample tested, and on finding that it was tin oxide of a high quality he, along with his mates, pegged six blocks of 40 acres each, went into Silverton, and succeeded in getting a number of influential people to join him in paying for the lease for an interest in the concern. The proprietors at once formed themselves into a Syndicate, framed Articles of Association, had scrip issued, and men at work inside of two weeks from the day when Keough put his pegs in the ground. This Syndicate is the Waukaroo Tin Proprietary Company. Shares in it were speedily in demand, and rose rapidly from £50 to £600 per $\frac{1}{16}$ th share. This rapid rise was largely owing to the magnificent sample of tin obtained from the first hole sunk on the lode when the ore was first discovered. Nearly half

a ton, assaying about 20 per cent. of tin, was sent to Adelaide, and exhibited in King William-street.

"The result of the discovery was similar to that produced by an alluvial gold find. Silverton sallied forth to a man and pegged ground in all directions north and south, and then did the prospecting after the ground was pegged. Broken Hill was slower in grasping the situation, but on realizing the value of the new field the Hill people went into the matter with great energy, some of the best mines falling into their hands, notably the Albion, the Albion South, the Botallick, the Union, and the Pine Paddock Proprietary Company. Mr. Campbell, the prospector of the Albion, had been known in mining circles on the Barrier since the discovery of the field, but his luck had never been in flood before. Hence, when he offered 96th shares in his new tin venture at a ridiculously low price he had some difficulty in allotting the required number to raise a small working capital and pay the expenses incurred. When, however, he began sinking on the shoot of ore, and the wonderful richness of the mine became apparent, 96th shares became scarce at £120. All this took place in about three weeks from the date of discovery. Meanwhile the prospectors had been running along the line of dykes and pegging the whole of the country between a granite range that marks the western boundary of the stanniferous belt and a large quartzite dyke that runs along its eastern side, the width of the belt being about 2 miles. The country is by no means rugged, the hills being low slate ranges, with flat plains along the eastern side covered with saltbush. In the hills there is a little mulga scrub, but the vegetation is not sufficient to in any way hide the stratification of the rocks. One very strong dyke is bounded on either side by slate walls that rise above the level of the surrounding country, showing their jagged edges so plainly that a prospector could mark their course while passing along the foot of the range. No trees grew on this large dyke, but a yellow weed seemed to take kindly to the granite soil; hence the colour of the flowers, combined with the contrast presented by the surrounding country, made it possible for a man on horseback to track the course of the lode without going nearer to it than a couple of miles. Thus the whole country for 9 miles north and south by 2 miles east and

west was pegged and lease notices posted at the corners of the blocks within two weeks from the date of discovery. Of course, all this ground will not turn out to be valuable, but prospectors were willing to incur the expense of leasing on the chance of discovering payable ore by deliberate examination of the ground after having secured it, and the value of the prize, should they discover payable tin, was great enough to warrant the expenditure in trying to find it.

"During this time the events of the early days of the Barrier were enacted over again. Men came into town with a sample of tin, obtained no one knew where, and having been secured by a middleman shares in the unleased ground were retailed at high prices, and prices rose without any reason except that the man who could 'blow' the loudest about the value of his show could obtain the best price for his stock. Just as the early Barrier Ranger used to travel on his 'slug' of silver-lead or horn-silver, and retail shares in the best-looking hills that were to be found in the ranges, so the middlemen or prospectors could sell shares in saltbush flats to eager buyers in Silverton, Broken Hill, Adelaide, and elsewhere. The result of this indiscriminate absorption of all tin properties offered soon produced the inevitable result, and it quickly became as difficult to deal with tin leases as it had a few weeks before been easy.

"The sudden acquisition of money and valuable mining interests by numbers of prospectors who had been unsuccessful up to that time produced the usual hilarity and indulgence on the part of the lucky ones. These identities would suddenly appear marching along the main street of Silverton or Broken Hill, dressed in a new tweed suit, with the creases of its folds still plainly visible along their longitude, their hats at a rake, and with an air of importance that betokened some sudden change of fortune. The various 'pubs' would be visited in turn, and 'shouting' for all hands became the order of the day. Some, more cautious than their fellows, recollecting how hard a struggle they had endured, patronized some of the Banks, and took their success in a more sane and subdued manner, not a few taking to themselves wives.

"While various opinions were being freely expressed regarding the comparative and intrinsic value of the different properties, the Government Geologist (Mr. C. S. Wilkinson) paid a visit to the field and prepared a report, which was sub-

mitted to the Minister for Mines and published in the daily papers of Sydney and Adelaide. As this report was anxiously awaited by numerous investors, especially in Adelaide, its effect was very singular. The general result was a depression in all tin stocks, Waukaroo Proprietary shares falling as low as £100, and Granite Springs falling from £100 to below £50. The curious thing about the report was that nobody seemed to know whether it was intended to speak highly of or to depreciate the discovery. The public were anxious to know whether the geological formation of the country was favourable or otherwise for the occurrence or permanence of rich tin lodes, or whether the rocks were of the same kind as those in which tin occurs in other parts of the world. Those very important questions remained unanswered, and after a few weeks nobody paid any attention to the report."

No. II.

CAPTAIN THOMAS'S REPORT.

The history of the field would be wanting in an important particular without a statement as to the part played by Captain Thomas. The family of this gentleman has long been associated with the management of the famous Dolcoath Tin Mine in Cornwall, and Captain Thomas is himself an eminent tin miner. The Minister for Mines in New South Wales, through Mr. Snowball, of Silvertown, requested Captain Thomas to inspect the tinfields of Campbell's Creek, Mount Euriovie, and Byjerkerno Creek about five months ago. In the course of his report he said:—

"I would prefer to treat them as a whole rather than three distinct districts as really they belong to the same formation, and contain for the whole distance lodes, the contents of which are so similar that I question if any other tin district in the world shows any parallel, broken only by porphyritic and felspathic dykes, and in one instance a tremendous outburst of quartzite and blue spar—occurring in the southern part of the field. This formation can be traced for miles but shows itself more prominently nearly opposite the township of Euriovie; here this kind of formation shows itself in an abrupt mass, as if it had no continuation, whilst at the northern end of the district it would seem as if a huge slice had been scooped out, making a complete division of the formation, and leaving immense cliffs on either side.

Nothing, however, has been taken or washed away in either case, but is, owing to a subsidence of that portion, now showing the low ground. In these places it would appear as if the lodes had disappeared. It is not so, however, as the lodes there are equally as continuous, but covered over by a sedimentary wash, brought down from the mountains and deposited on them. The quartzite formation has a direction about the same as all the lodes on the field, whilst the porphyritic dykes invariably cross them at right angles or thereabouts.

These dykes are always looked on with favour by the miner, as it is generally found as they come in contact with the lode the quality of the stone is much improved. Mount Bischoff, Tasmania, is an instance of this, as is Dolcoath, Cornwall. Yet without great care these dykes may become an element of danger to a whole district. The cross courses are channels (extending for miles) collecting in their course a vast quantity of water, and it sometimes happens that several mines on the same course of the lode break into several of these, and cut such a supply of water that although a mine may be very rich, it may not be rich enough to pay the pumping and other expenses incidental thereto. In the parish of Gwennap, Cornwall, is a case in point, where mine after mine had been allowed to break into each other's workings, the result has been that a whole district is lying idle, yet having three as good mines in it as Mount Bischoff or Dolcoath. The principle adopted now is to have the natural barriers broken as little as possible, and where they do not exist, to create a barrier of some 30 feet between each mine.

I have been asked since I have been here if I ever knew any tin mine to pay in clay slate. I would here say that Mount Bischoff is in precisely similar formation. The richest tin mine Cornwall ever had—Wheal Vor—the same; Dolcoath the first 190 fathoms the same; much of the Herberton district, as also much of the lode formation of the Straits Settlements.

The lodes are said to be too small to pay. In Cornwall I have never seen a lode cropping up at surface; in fact, Dolcoath, now about half a mile deep in many places, has scarcely the vestige of a lode for the first 70 feet. The lode at the bottom is from 30 to 70 feet wide. By sinking there can be no doubt the lodes in this district will widen, except in

singular instances where the strata are very hard and the lode comes in contact with the quartzite.

The lodes are composed, without exception, of felspar, mica, talc, quartz, and blue spar. These occur in each place opened on, but more of one and less of the other in different places, the general appearance of the whole being small ridges of granite thrown up in the midst of clay slate ranges. The granitic appearance will, however, disappear as depth is attained. Much of the mica will be thrown out and displaced by chlorite, as is the case in the parish of Wendron, Cornwall, and also at Cream Creek, Tasmania, where the lodes are precisely the same. In these two instances, as the mica and talc dropped off or became smaller in particles, the tin also is in finer crystals. Whilst going over some of the ranges in this place my attention was called to the fact that the mica had disappeared and the tin with it, but on pulverizing and washing it it was found to contain about 20 per cent. of tin, though to the inexperienced eye none was visible. In conclusion, I would say this tinfield will be a factor to regulate the tin market of the world, although, like all other fields, it will have its periods of successes and reverses, but of its ultimate endurance I have no doubt."

GEOLOGICAL FEATURES.

Speaking of the tin-bearing rocks near Poolamacca, Mr. Wilkinson, the Government geologist of New South Wales, in his celebrated report, dated October 24 last, said:—"These formations consist of metamorphosed clay slates, and mica schists intersected by dykes of granite and quartz reefs. The tin ore, cassiterite, occurs in these granite dykes, not as veins, but in black crystals in size from a mere speck or grain hardly visible to the naked eye, up to about 3 inches in diameter. It is unevenly disseminated through the granite, but is distributed more or less in patches with a little ore scattered between them. In fact the cassiterite appears crystallised like the minerals composing the rock—the quartz, felspar, and mica, which also often occurs, separately or together, in coarsely crystalline patches in a fine-grained base of the same minerals. Sometimes one or more of these minerals predominate, so that in places the rock is chiefly composed of mica in large flakes, or of mica and quartz, or of mica and felspar, with crystals of tin ore and black tourmaline intermixed. The granite dykes them-

selves are very irregular in thickness and extent, either in length or depth."

The tin-bearing country meets the silver country at the Rise and Shine, as mentioned in the reference to that mine, and it is interesting to know, says the *Silver Age Almanac*, "that an immense granite dyke can be seen, with mica schists, on the silver side, and argillite on metamorphosed clay on the tin side. This rock is the usual accompaniment of tin-bearing lodes, and from here to Mount Lake, about 6 miles, there are tin-bearing ores, and in places where opened up large crystals of cassiterite can be seen. The tin commences again at the western fall and continues then for 14 miles."

A very decided boundary (writes a Barrier Ranger) runs along the eastern side of the tin-bearing basin in the shape of a huge quartzite reef, which rises in places to the magnitude of hills. It has a reddish appearance, partly the result of iron stains and partly the colour of the quartz. No tin has been found beyond this wall, though the reefs are found close up to it on the western side. The western boundary of the field is a granite range, somewhat similar in character to the material of which the tin-bearing dykes are composed, only there is not so much mica in the rock, and the felspar is of a coarser grain. The intervening country between these two limits is composed of mica slates of various ages, containing some of the oldest fossils. The greisen dykes, in which the tin oxide occurs, are sandwiched in between the layers of slate, the strata having impressed its mould upon the material during the period of its upheaval. Consequently we find that these dykes are very variable in thickness, having formed large bulges where the least resistance was offered by the enclosing strata. Sometimes a lode runs along for a considerable distance of almost uniform thickness, then all at once it forms a "blow," some of which are upwards of 2 chains in width and outcropping above the level of the surrounding country. In other places the soft slate rock has been worn away by aqueous denudation, leaving the harder dyke standing, with polished walls 4 or 5 feet higher than the slate. The crystals of tin can be seen in the rock like plums in a pudding, and in estimating the percentage which any lode will carry a person of average intelligence is just as well qualified to form an opinion as the veriest geological expert, provided he has taken the trouble to pulverize and wash a few

samples. The oxide is a very fixed quantity, containing from 70 to 78 per cent. of metallic tin, the balance being oxygen, with minute quantities of iron and gangue. The Poolamacca tin is remarkably pure, being free from tungstic acid or other impurities that sometimes deteriorate its value. The matrix is very easily reduced, and this fact is of some importance in calculating the cost of concentrating the ore and making it ready for market. The oxide having a specific gravity of 7, while the granite in which it is contained does not exceed 4, it becomes a very simple matter to separate them by water gravitation in any form of jigger, or by the fine or Frue vanner.

EURIOWIE.

A brand new township is Eurioiwie, about 48 miles in a north-easterly direction from Broken Hill and 54 from Silverton. Except that in the summer months the heat of the sun is apt to be oppressive, the drive from Broken Hill via Waukeroo to Poolamacca is not uninteresting. The first stopping-place is Stephen's Creek, about 8 miles out, where the waterbags are filled, and dinner is taken at the Albion township, 18 miles from Broken Hill. There are less than half a dozen buildings in the settlement, a fewer number than of claims in the locality. The Waukeroo field, which is some 5 or 6 miles further on, employs about 100 men. A good bush-road past the "Paps," twin conical hills of considerable height and rare form, constituting a singularly efficient landmark to travellers, leads to the Poolamacca Hotel, 35 miles from Broken Hill and 13 from Eurioiwie. The beneficent character of late seasons is shown by the vigorous saltbush, while the numerous belts of teatree and the frequent lines of gum give the landscape a cheerful aspect. From Poolamacca Hotel (a comfortable stone building with an affable intelligent host) the road passes through picturesque scenery, the charm of which is somehow detracted from by the precipitous and corkscrew nature of the descent from the ranges to the Lady Don township, about 4 miles from Eurioiwie. The return journey can be made on practically level ground by a good bush road avoiding the ranges and leading to the Albion township.

It is less than nine months ago that Eurioiwie was pegged out. Having its *raison d'être* in the tinfields, the principal mines being within a range of 2 or 3 miles, it has now a population, including

miners in the locality, of 700 persons, while it boasts of two Banks, three stores, four hotels, several other places of business, and a racecourse, but no Church building. Every structure is of galvanized iron. In the course of time, no doubt, substantial stone buildings will be erected. The town is rapidly growing. At present there is a demand for skilled miners in the district. It is stated that telegraphic communication will shortly be given, and in the not far distant future a tramway will connect the centres of the Barriersilver and tin fields with the capitals of the colonies. About 4 miles at the foot of the ranges which divide it from Gainer's Poolamacca Hotel is the Lady Don township—a new and small but increasing settlement, with several claims being worked in its vicinity. Other townships will no doubt spring up as the development of the field proceeds. More than 800 leases of 40 acres each have been applied for in it; and, if the labour conditions are complied with, there must soon be a large addition to the present population.

NO. III.

MOUNT EURIOWIE MINE.

About 2½ miles from the township by road, and some little distance from the Mount, is the Mount Eurioiwie claim in moderately hilly ground. Though the propriety of calling it the Broken Hill of the tinfield may be called into question by those who admire the Victory lode, its precedence in point of time, the advanced and interesting stage of its development and the public attention bestowed upon the stock will, it must be admitted on all hands, entitle it, apart from any comparison of merit, to first notice. The future of the field will, to a certain degree, be affected by the success of the ore-dressing machinery, which will be started in April. The property is valued, according to the present state of the money market, at £286,000, and as this is the highest estimate put upon any tin claim on the Barrier it may be considered to rank highest in public esteem.

When one comes upon the Eurioiwie lode, after being accustomed to see tin lodes measured in inches and stone turned over to find a tin sample, it is quite exhilarating to trace it outcropping large and rich throughout the length of the claim. Even cautious Mr. Wilkinson, the Government Geologist of New South Wales, could not contain an official

admiration for it. He said:—"One of the most regular lodes yet opened is that which runs for about half a mile through the Euriovie North portions. In this lode the tin is seen to be more evenly distributed through the granite than is usually the case. But even this lode or granite dyke, which it really is, varies in width from 1 to 18 feet, and runs in breaks, thinning at intervals, and making again within a few feet of the west side. Nevertheless the lode appears to be sufficiently persistent to be workable on a large scale. I was informed that a parcel of 20 tons of it, crushed at the Umberumberka machine, yielded at the rate of 8 per cent. oxide of tin. The lode strikes north-west, and has a westerly dip. It consists of coarsely crystalline granite with large flakes of mica, and traverses altered mica schists, which strike north and south."

As this matter of the extent and quality of the lode is of primary importance, it is only fair to put on record the testimony of Captain Black, as follows:—"The lode traversed the claim in one unbroken line for a distance of 4,650 feet. Throughout this distance the lode varied in thickness from 4 to 14 feet thick—the average thickness would be from 6 to 8 feet. The thin portions of the lode would not make up more than 300 feet throughout the length of the lode, and were principally to the south of the No. 2 Gully; but about 400 feet from the gully the lode widened out to 14 feet thick. It was that thickness at the bottom of No. 3 Shaft 62 feet below the surface; and at No. 2 Shaft in a drive 60 feet below the surface the lode was 9 feet thick, and is widening out in the end and floor of the drive. There was no work done on the lode during two months until the beginning of the year, when some men were put on; and in the north end at No. 2 Gully some of the richest stone was obtained that had been seen in the district, and it continues to look splendid. There was also some very rich stone got from a face going south, half-way between No. 2 Gully and the top of the hill. There were five faces opened out on the lode to take it out by open cuttings, and there were from 500 to 600 tons of lode broken on surface."

The history of the Company has been well told in a previous letter by "Barrier Ranger," and it will only be necessary to notice the progress made in development. The claim comprises eight blocks, but a portion of the land is a water reserve.

The Directors in their last report stated that recognising the advisability of conserving all the water obtainable, and having a site on the property eminently suitable for such a purpose, at the earliest moment after survey let a contract for the necessary excavations and embankments. The result is a dam capable of holding 5,000,000 gallons of water. At present there is not much water in it, but such a reservoir was regarded as a most important auxiliary to the mine, supplying as it would all the water required for drinking purposes and for the boilers, as well as proving a valuable supplement to the water required for concentrating purposes. In view of an anticipated difficulty in procuring a large water supply a special ore-dressing plant was obtained by the Company; but since the last meeting of shareholders a large body of water has been struck in the water shaft, sunk to a depth of about 100 feet on the southern portion of the mine, about 478 feet north of the boundary. This will not only benefit the mine, but assist the development of the tinfield by assuring Directors of other Companies that water can be obtained by sinking to a moderate depth.

The machinery is in a forward state as regards erection. The Directors, perceiving how much depended upon securing the services of an able Manager, paid special attention to the selection of a good man. Mr. George Black, the subject of their choice, bears a very high reputation in the district as a mining engineer of great experience and energy. He was deputed to go to Melbourne and Sydney, and on his return reported that he had purchased such a plant as in his opinion would be most suitable for effectual treatment of the ores with the least possible consumption of water. The plant is of an estimated capacity of 300 tons per week. The engine and boiler for driving the dressing machinery are of the following size:—Engine, 14½-inch cylinder and 32-inch stroke; boiler, 20 x 6 feet, with 40-inch flue. The reducing plant consists of one stonebreaker and two Wall's patent rolls. The classifying portion of the work will be done with five trommels of different gauge screens, and the washing and concentration of crushed ore and slimes performed by four three-compartment jigs and two Frue vanners. For the class of plant a great height is required, and some of the framing stood 36 feet above the level of the dressing floor, the stonebreaking machine being up that height above floor and 12 feet above

the level of tramway. An excavation has been cut in the face of the hill 70 feet by 34 feet by 8 feet deep at the upper end, equal to 350 yards of rock cutting, and between the floor and the creek there is a fall of 16 feet, which will be occupied with settling tanks, tailing pits, &c. Immediately above the cutting a strong stage is erected, which stands 28 feet above the face of the hill, for the purpose of carrying a day's crushing of ore for the supply of the mill. The floor on the top of the stage will be 20 feet square, for containing the ore, which will be brought up in trucks direct from the different workings or faces on the lode. The tresselwork for connecting the tramway to stage is all erected, and the framework of stage nearly ready for setting up. At the water-shaft the machinery consists of a 12½-inch cylinder engine of 3-feet stroke and a Cornish boiler 17 feet by 5 feet, fitted with a steam dome, Galloway tubes and water-bridge. The boiler will be a good one for generating steam on a small percentage of fuel. The work to be performed by the engine is to work a column of 8-inch pumps in the water-shaft, and to work a centrifugal pump to raise water from the top of the column up to the supply tank of the dressing plant, a height of say 40 feet. In future the shaft will be used as a winding shaft for the southern portion of the mine when the ore is raised from below after the main shaft is put down and the lode drained from a lower level.

Everything appears to be ready for the starting of the machinery. The necessary buildings are erected, the lode opened for quarrying out from the surface, and a horse-tramway laid. The tramway is laid parallel with the lode from the No. 2 gully down to the dressing plant, for the purpose of conveying the ore from the different faces along the lode down to the mill. The length of the tramway is 1,230 feet, a section of which 400 feet long is a double line for self-acting grade. A road-way for horse was formed up one side of line, from No. 2 gully to top of hill, a distance of 700 feet.

A correspondent in a letter which appeared in a previous issue compared the Company with the Broken Hill Proprietary Company, and according to his statement of the case the Euriovie shareholders should receive with a 300-ton concentrating plant at work more than double the dividends paid by the Broken Hill Company with a 1,500-ton smelting plant, while there will be four or five tin

blocks available for segregation. Yet the shrewdest speculators on the Corner give less than £20 for Euriovie's and more than £400 for Broken's! In the presence of such an astonishing fact it is scarcely safe to speak of the Company's prospects. Without, however, going into the debateable figures introduced, or into the question of whether there is an unlimited supply of crude tin ore which can be raised and reduced to a value of £120 per ton for £1 a ton, it is wiser not to be unduly sanguine about the future, but to accept the belief of the Directors, which is explicit as to one result and judiciously vague as to the details as expressing all the facts will now warrant, namely, "that the property will very soon occupy an honourable position among the dividend-paying Companies of the district."

The capital is 16,000 £5 shares paid or capitalized to £4 12s., and sales were made on February 18 at £17 17s. 6d.

THE VICTORY MINE.

One of the best opened up and one of the most promising mines on the field is the Victory, which was discovered by Messrs. Porter and West shortly after the Euriovie was floated and was formed into an Adelaide Company about six months ago. It is about a mile and a-half in a direct line to the north-west from the Euriovie and a mile to the west from the township, but somewhat further by road. The claim comprises four blocks, taking in two high hills.

On the same line of strike as the lodes in the Queen Victoria and Prince of Wales United Company, towards the south, other lodes, said Mr. Wilkinson, crop out through the Victory Company's ground. He added, "Some of these are being prospected, and a shaft 40 feet deep has been sunk in one 8 ft. 4 in. wide. This lode strikes N. 10° W., and consists of coarse crystals of felspar, mica, and quartz, with tin ore in patches, which, if worked separately, would probably yield 20 per cent. of ore." The Company sunk this shaft (Porter's) deeper and at 50 feet it opened out very wide. They went down to 80 feet, and found that the lode had diminished. After that lava, similar to that met with in gold reefs, was passed through. Further sinking found the lode to be about 8 feet in width at a depth of between 90 and 100 feet. The shaft is now down 110 feet, and ore is coming out of a very good class and through the lode, which has opened

out to quite 12 feet wide. A tunnel is being driven in the hill to meet the shaft at a depth of 150 feet. The length of the tunnel will be 570 feet. Of this distance 280 feet has been cut, and as the miners are driving at the rate of 20 feet a week it will take about fourteen weeks to make the connection. On the southers block on the top of the hill is a shaft 65 feet deep, and it is intended to go down to 100 feet at least, probable 150 feet, so as to get into settled country. This shaft, which began on the hanging-wall, is in another lode 10 feet wide, with a very great underlay, which will probably with a third lode be found to come together at a depth. It is considered likely that the lodes tapped by the two shafts will unite before reaching the tunnel level, but the work is planned so as to intercept the three. A water shaft is being sunk on the creek, which is now 30 feet deep with no supply, but water is confidently looked for directly.

The Manager, Captain Oates, who has had considerable experience in tin-mining in Cornwall, is opening up the mine with great energy, and his policy is to get considerable ore reserves in sight and ensure a large water supply before ordering expensive machinery. He has so laid out the work that when the time comes to erect the machinery all the operations will, as far as possible, be concentrated with a view to economy in time, labour, and expense. There is several hundreds of tons of ore at grass estimated to average 7 per cent. Seven cases of good samples have been shipped for display in the Melbourne Centennial Exhibition. About forty men are employed on the mine.

At the beginning of the year the Company had a credit balance of nearly £5,400. The capital of the Company is 35,000 £2 10s. shares, 5,000 being paid or capitalized to £2 each, and 30,000 to £2 5s. Sales were made on February 22 at £4 for promoters, and on February 17 at £3 11s. 6d. for contributors.

NO. IV.

THE EURIOWIE LODGE.

As the Euriowie lode passes from the Company's south boundary it is believed to be split into two fractures, one going into the Euriowie South's claim and the other into the Wee Jim. About half-way down the latter block it is understood to pass to the westward into the Euriowie South, and join the western branch, the main lode running through

the remainder of the South's claim. Emerging at the south-east corner into the Wee Jim's southern block it is described as making an elbow into the Mount Euriowie Extended property, and passing through a corner of a block to the south-west into the Trident and Sceptre, whence it trends away to the west in the direction of the Carn Brea. It is, however, contended that the lode passes from Mount Euriowie South into the Triumph, and thence into the Trident. To the north Mount Euriowie Estate is supposed to get two lodes, but they have done nothing to prove them. One lode passes into the Jubilee Claim.

THE SOUTH EXTENSION.

The Mount Euriowie South Claim, with a very flat surface, comprising one 60-acre block, pegged out by Messrs. Dickes and Hilton, gets the lode, which was picked up about fifty yards inside of the northern boundary and traced throughout the length of the property. A shaft was started, which is now sinking in the northern section, and it is down 40 feet, with as much water as can be conveniently dealt with without a steampump. It passed through the lode at 24 feet, and after a little more sinking a crosscut will be driven westward to prove the lode. In No. 2 Shaft, which is nearly 30 feet deep, there is a good show of tin and a well-defined big lode. No. 3 shaft is also sunk on the lode. From the situation of the claim, observations as to heaves in the lode, and other indications, this property is regarded by experts as fully worthy of further development, and the Syndicate are considering means of raising more capital to undertake it. The capital is fifty shares of £100, and a sale was made on February 14 at £500.

The Wee Jim, or, as now called, the Euriowie Central, which belongs to a Silverton Syndicate and adjoins the Euriowie's south boundary, and the Euriowie South's eastern and south-eastern boundaries, furnished samples of tin to the Adelaide Exhibition. There are several lodes in the eastern half of the ground, where a great deal of work has been done, and an effort is being made to find a portion of the main lode to sink upon. A 50-feet shaft and 21-feet cross-cut are in the hill, and the men have a short distance to drive to pick up a lode showing on the surface. This promising claim appears to take in besides an eastern branch of the Euriowie lode from the Euriowie ground, and a considerable length

of the main Euriowie lode after it leaves the Euriowie South's ground.

The Mount Euriowie Extended claim was recently put before the public. The block has been known as the Wee Jim Extended. There are three lodes, and an underlay shaft has been sunk 16 feet on the central one, which is said to be a continuation of the Euriowie lode, and presents favourable indications.

A shaft, which is down 26 feet, is being sunk in the Triumph, which lies directly south of the Euriowie South, on what appears to be the Euriowie lode. It has also been opened up in a second place.

The Trident, which comprises two 40-acre blocks, and adjoins the Mount Euriowie Extended at its south-west boundary, belonged to Messrs. Brodribb and Smith, of Poolamacca Station. It was floated in Adelaide only a short time since. Captain Williams, who has had previous experience in tin in England and Victoria, has erected machinery for and is ready to start sluicing. There is a lot of shed tin on the claim, and $2\frac{1}{2}$ per cent. will pay if a fair supply of water can be obtained. The Manager's last report was that water had been obtained. A shaft has been started on the lode near the top of the hill with good prospects. The capital of the Company is 24,000 £1-shares, 10,000 being paid or capitalized to 10s., and 14,000 to 15s. Sales of promoters were made on February 14 at 8s. 3d.

THE NORTH EXTENSION.

The Mount Euriowie Estate is a Melbourne Company, having seven blocks, six of 40 acres each and one of 9 acres, adjoining the Mount Euriowie Mine on the north. From this point the blocks are continuous. Captain Morish, in reporting on the property, stated that he found on the two southern blocks two well-defined strong lodes, in which free oxide of tin could be seen in payable quantities. The lodes are about 6 feet wide, and have a bearing of north 20 degrees west.

The outcrop of the lode can be traced through the next four northern blocks of the Mount Euriowie Estate, going under in Block 74 and reappearing in Block 73 and the Jubilee Tin Company's ground, consisting of three blocks. Two shafts were sunk, but rendered of little use through an accumulation of carbonic gas. The surface shows are encouraging.

Some ground has been taken up on the idea that the lode runs to the east and not to the west of the Mount. The name of the claim is the Ballarat, and the pro-

prietors intend to display Victorian energy in deep sinking.

WESTERN CLAIMS.

Adjoining the Victory Claim is the Victory South, and parallel to it is the Victory Extended, and beyond that Victory No. 1 and Victory No. 2. The Victory lodes are in considerable favour in the district, and hence the popularity of the name.

On the Victory South several men are working. A split in the lode has occurred, but they may again come together in depth. Splits and heaves are usually regarded with favour by miners. There is a third lode showing good indications. No. 1 lode at a depth of 2 feet is 10 feet wide, and No. 2 is being also prospected with encouraging results.

Victory No. 2 appears to have had a chequered career, first figuring as the Big Blow, and then as the Pinnacles Tin. A shaft is down 28 feet, and the lode, which is 32 feet wide, has a good show. On the claim, which consists of two blocks, there is also a galena lode.

Touching the Victory Company's claim at the north-east corner is the Poolamacca, comprising five 40-acre blocks. One of them is on the line of the Victory lode. The rest of the blocks are to the westward, and contain three parallel lode formations with strong outcrops. Tunnels are being driven to cut two lodes. No. 1 Tunnel south is in 20 feet, showing a 6-foot lode carrying some fine tin. No. 2 Tunnel north is in 12 feet. The lode is 40 feet wide, carrying fine tin also. A new shaft is to be sunk on the Victory lode on Block 79. A blacksmith's shop is being built. Six men are employed, and six more will be put on immediately. The capital is 72,000 £1-shares, one-half being paid or capitalized to 15s. 3d. and the other to £1. Sales were 5s. and 7s. 9d. on February 18 and 17 respectively.

The adjoining claim is the Mount Bunchikana, and it is also parallel with Victory No. 1, which is situated to the west. It is about half a mile north-west of the Euriowie, and consists of four blocks of 40 acres, being exactly a mile on the course of the lodes. Prospecting is being carried on with good results. The Manager reports that on Block 40 there is a shaft 43 feet deep and a lode 5 feet wide showing splendid tin in the bottom. In Block 41 there is a large lode. There are two lodes on Block 42. No. 2 Shaft is down 24 feet on a large lode, the width of

which has not been proved. It carries a fair percentage of tin. The Victory and Poolamacca lode is over 50 feet wide, containing some splendid tin. In Block 43 the men are costeening on the course of the lode. The Manager adds that he is of opinion that in a short time he will be able to open up a payable mine. An attempt was made some few months ago to float the claim into a Company in Melbourne. At present the capital is in eighty £100-shares, £77 paid or capitalized, and a sale is reported on February 9 at £150.

Next to the Bunchikana on the south, and Victory No. 2 on the east, is the Sir William Don claim, including 160 acres in four blocks. The ground is three blocks wide east and west, with a view to take in extensions of two main lines of lode, Euriewie and Bunchikana. Two large lode formations stand boldly out on the claim. A good deal of prospecting has been done, excellent shows of tin being obtained.

Abutting the Sir William Don on the south-east is the Grace Darling. Several small lodes and two principal ones are on the property, on which two shafts have been sunk with fair prospects.

The Carn Brea, named after a celebrated Cornish mine, is between the Grace Darling and the Lady Don township. There is a large lode formation of such a character as to encourage development.

The Tincroft is about a mile westerly in the ranges from the Victory Tin Mine. Mr. Kraft is the Manager. There is a shaft sunk on the course of a good strong lode to a depth of 40 feet. Having struck a quick supply of water the proprietors have left off sinking, and have now three men working in an open cutting on the course of the lode in which there is a good show of tin.

The Mount Tincroft, which is about a mile to the south of the Tincroft, has a shaft sunk to 37 feet which has been abandoned through a large flow of fresh water. The prospects are decidedly encouraging.

NORTHERN CLAIMS.

Starting again from the Victory, there are several claims to the north, including the Queen Victoria, Barrier Bischoff, Rio Tinto, Caloolas, Cosmopolitans, and others.

The Queen Victoria and Prince of Wales claims, for which Mr. Klotz is Manager, have six parallel lodes, five of

which are tin-bearing. No. 1 Western Lode Shaft is 48 feet deep on a strong lode. Mr. Klotz intends putting a cross-cut through this lode at a depth of 50 feet, where he expects to get good stuff. On No. 2 lode two men are engaged costeening, and have found some very good stone. They have not yet proved the width of the lode. The shaft on No. 3 lode is 15 feet deep. The lode is 10 ft. 6 in. wide, showing tin the whole depth. On No. 4 lode there is a perpendicular shaft 50 feet deep. The lode is 41 feet wide, with very fair prospects. At 35 feet they lost the course of tin, the lode taking a westerly underlay. No work has been done on No. 5 lode. In costeening No. 6 lode 16 feet wide of tin-bearing stone has been discovered.

On the Prince of Wales block a shaft has been sunk 26 feet, but no tin has been discovered, but the stone is kindly looking. This claim is north of the Cosmopolitan and adjoins the Caloola North.

The west lode of the Cosmopolitan traverses the Rio Tinto, and some sinking has been done on the ground.

To the north of the Queen Victoria and south of the Caloola is the Barrier Bischoff, a 40-acre block, which appears to be rich in lodes both as to number and size. On No. 1, which is reported to be 60 feet wide, a shaft is sunk 70 feet. At 65 feet a large body of tin was struck. The shaft in No. 2 lode, 22 feet wide, is down 58 feet in tin. No. 3 lode is cut in the tunnel, which is in 93 feet. A shaft is sunk 30 feet upon No. 4 lode, carrying good tin. The outcrop of this lode is large. There are three other lodes on the property, ranging from 3 feet to 10 feet wide, according to surface indications. The claim is being vigorously developed, and has the promise of proving a good property. The capital of the Company is 10,000 £1 10s. shares paid or capitalized to 15s., and sold at £1 on February 14, and 30,000 £2 5s. shares paid or capitalized to £2 5s., and sold at £2 2s. 6d. on February 13.

Adjoining the Barrier Bischoff on the north-western boundary is the Caloola. At the time of the visit of Mr. Wilkinson, the Government Geologist, in October last, a shaft had been sunk following the lode to a depth of 75 feet, and showing it to be much the same character as near the surface. He added in his report:—"Some 8 tons of about 50 per cent. ore has been raised during the sinking of this shaft. The lode or granite dyke dips east 35°, at north 75°. It is from 1 foot

to 9 feet wide, and outcrops on the surface for about 200 yards. The tin ore is in patches through it." At present driving is being carried on at the 40-foot level, and when sufficiently far stoping will be begun on an excellent shoot of ore showing in the shaft. The southern drive is also in 17 feet. It is proposed to sink another 50 feet on the lode, and the men are sinking a western shaft, which is now 86 feet deep. A fourth lode, in which a little tin is showing, is being opened up (the shaft is some 47 feet from grass) near the residence of Captain W. Williams, who, with an extensive mining experience, is vigorously working the claim. The capital is 80,000 £1 shares, 15s. paid or capitalized, and sales were made on February 18 at 10s.

The Caloola King, recently placed before the Adelaide public, is a claim about 2 miles north-west of the township of Euriowie, and comprising three blocks of 40 acres, the southern block adjoining the western side of the Barrier Bischoff. The next block to the north abuts the Caloola on the western boundary. Captain Oats, in reporting on the property, stated that there were four large and masterly lodes running through the blocks, besides several smaller ones, which appeared to be branches of the main leaders. The east lode, which passed through the two northerly blocks, had a fine cropping 8 and 10 feet wide, with tin in places, having, he added, the same bearing and being evidently the main lode on the Barrier Bischoff, and which ran south into the Queen Victoria and Victory Mines. There were two other important lodes, but the fourth lode, which was 56 feet wide, had, according to Captain Oats, one of the finest surface-shows of oxide of tin he had seen on the fields. The property appears to possess other qualifications for a good mine. No work of any consequence has, however, been done below the surface.

At Caloola South two dykes of coarse-grained granite were being prospected during Mr. Wilkinson's visit. One was 20 feet across as seen in an open cut 6 feet deep, and the other 70 feet east was 15 feet. Two chains north those dykes came together. There are 96 shares in the Syndicate, and a share was sold on February 14 at £46.

The Toogooroo is to the east of the Caloola South and the Rio Tinto. To the north of these are the Caloola North and Cosmopolitan.

At the Caloola North a shaft is being

sunk, and it is proposed to crosscut at 40 feet if the lode is not met with. The claim is well situated, but very little tin appears to have been found. It may be necessary to go in for deep sinking. A contract has been let to sink a shaft 50 feet on No. 4 lode. The capital is 60,000 £1 shares, 15s. paid or capitalized, and sales were made at 2s. 6d. on February 18.

At the Cosmopolitan Mr. A. W. Chapman, who came with the highest testimonials from Buninyong, Victoria, recently took charge, and after examining the property made a report to the Directors, in which he said:—"No. 1 Shaft is 353 feet in a northerly direction from the corner peg, and sunk on the underlay of the lode to about 40 feet from the surface. I am informed that at the bottom the lode is fully 8 feet wide with well-defined footwall, and contains fully 15 per cent. of tin, but owing to the appliance not being sufficient to contend with the water they were compelled to discontinue further sinking. No. 2 is the main vertical shaft in a northerly direction from No. 1, and about 30 feet east of the outcrop of the lode; size of shaft 8 x 4, and properly timbered, and is now 70 feet deep from surface. This shaft we are pushing on with all possible speed, and should strike the lode at about 90 feet. No. 3 Shaft is about 630 feet further on in a northerly direction, and is sunk on the lode to the depth of about 66 feet. The lode is about 3 feet wide, with well-defined footwall, and to all appearance it gets larger as it goes down, oxide of tin freely seen on either end, and on the surface very fair tin ore can be got which came from the shaft. The outcrop of this lode is clearly traceable from No. 1 to this shaft, and in places it has been trenched across loose tin can be seen. I have pulverized and washed several stones from this lode, and find it contains good samples of tin, although to the eye none could be seen in the stone, which shows that this lode contains a percentage of tin not visible. When it is properly developed and machinery obtained for requirements it will rank with the best paying lodes in the district. On another line of lode further west, the outcrop of which is traceable for a considerable distance, there are two other shafts (noted as No. 5 and 6), but owing to the foul air I could not get down to examine the lode. I am informed they are about 60 feet deep, which appears to be the water level on this lode, but from the stone on the surface which came from them very fair

samples of tin ore can be obtained. Near the above-mentioned outcrop there is an area of surface which contains tin, but I could not estimate the quantity or quality of the soil at present, but from the tin seen I have no hesitation in saying that when water is available it will prove remunerative in the meantime." A contract was let on December 20 to Messrs. Fulton and Co. for pumping and winding plant for £720, the plant to be ready on March 20. About £2,000 has been spent on the property. The Directors prefer to dispose of the unallotted shares to making further calls with a view to purchasing concentrating plant and thoroughly developing the mine. It is an Adelaide Company, and the capital is 60,000 £1-shares, half being paid or capitalized to 13s. 6d., and the other to 15s. Sales were made at 5s. 3d. and 7s. on February 18 and 16 respectively.

The Cosmopolitan Extended is favourably spoken of, but there is not much being done there at present.

The Wheal Byjerkerno, which was formerly known as the Melbourne, belongs to a Victorian Company, who have a shaft down 25 feet on a lode about 4 feet wide and very rich. They can trace it for about 7 or 8 chains with a good show of tin.

The Adelaide Tin-mining Syndicate have several prospecting holes with a good show of tin. They have sunk on the course of the lode about 50 feet, and they are sinking in the country to strike the lode.

The Thistle, which is an Adelaide Company, Captain Eddy, Manager, is one block removed from the Cosmopolitan to the north. They have several prospecting holes, and there is one shaft 40 feet deep with a splendid show of tin in the lode about $3\frac{1}{2}$ feet wide. The Directors recently received from Messrs. Parke & Lacy, of Sydney, the result of their treatment of a parcel of over 3 tons. It went a trifle over 10 per cent. of tin ore to the whole bulk submitted. Fifty-five hundredweight of the above was taken generally from the bulk of the lode, and yielded 8 per cent. of oxide of tin, while $8\frac{1}{2}$ cwt. picked and roughly hammer-dressed, returned 24 per cent. There is a shaft 97 feet on the lode from 3 to 4 feet wide near the bottom, but they are crosscutting it, and not yet to the wall. The men are now engaged in cutting down the shaft making ready for pumps, ladders, &c. The capital is 40,000 £1-shares, 6s. paid or capitalized,

and sales were made on February 16 at 6s.

The Ruby is the next claim, where the men are driving on the course of the lode south from a vertical shaft 90 feet deep. A small lode of iron pyrites has been cut and several stringers found. It is intended to begin work on the adjoining block to the west. The capital is 60,000 £1-shares, 15s. paid or capitalized, and sales were made on February 18 at 1s. $7\frac{1}{2}$ d.

The Farnell is a Port Adelaide Syndicate, for whom Mr. G. E. Haddy is Manager. The claim includes 160 acres. There is a 50-foot shaft with prospects and several costeeing pits on the course of the lode, which in the 50-foot shaft is 3 feet wide. Some lodes prospected on are 18 to 20 feet wide, but they have not found any very rich ore. An encouraging sample of tin has recently been sent to the Port. The road to the Corroona Station goes through this claim.

No. V.

THE LADY DON MINE.

About half a mile from the Lady Don township, in hilly country, is the Lady Don Mine to which special interest attaches as the origin of the present activity on the tinfield. About fifteen months ago Mr. Johnstone began to work the leases, and applying the drill and the blast to the stanniferous dykes was, as previously mentioned, rewarded by finding rich seams of nearly pure oxide of tin distributed irregularly through a formation about 14 feet thick. So confident were numbers of mining men of the ultimate value of the discovery that they formed a Syndicate to purchase the property, consisting of 80 acres, and this Syndicate was shortly afterwards transformed into the Lady Don Company.

The Company have done some excellent work, albeit they have not yet been rewarded with the success they deserve. About £2,500 has been spent upon the development of the property, in which there are two lodes, which are now being proved at a depth. Eighty-seven feet down from the crown of the hill, there is a tunnel the course of which is traversed by a big lode ranging from 5 to 15 feet in width, but there has been a heave at the end of the tunnel which has thrown her back into her course. A winze, which goes down 35 feet below this level, is in the lode all the way, showing tin more or less, but nothing very great. The

manager, Mr. Evans, is driving north to cut the lode. A second tunnel exists at about 70 feet from the crown of the hill, and there is a continuation of the winze in the other tunnel. The higher level was driven in the early times. It shows some very good tin in patches. From the surface of the hill there is an opening into the western lode, which gave 6 tons of rich stuff. Captain Evans has sunk the main shaft to 87 feet, and is driving to cut the lodes to the east and west. He expects that 18 feet will cut the west lode and 35 feet the east. The water shaft is down 60 feet, and 70 feet of driving has been done. Machinery is to be erected on the hill. It will include a 30-horse-power winding gear.

The progress of the operations at this mine will be watched with interest. There are at least four southern lodes verging into the hill, where there is a tremendous big blow. There is a surface show of splendid tin, but the question is whether it carries to any depth, or whether there will be a change. Galena is obtainable in the water shaft. Probably the eastern and western lodes will unite in a large formation lower down; and tin may then appear. The western block is being prospected. The capital is 60,000 £1-shares, half being paid or capitalized to 10s., and the other to 15s. Sales were made on February 16 and 17 at 2s. and 5s. respectively.

ADJOINING CLAIMS.

The Cobar is on the eastern side of the Lady Don. The lease was to be declared forfeited for non-compliance with the conditions.

On the brow of the hill bearing east from the Lady Don is the Ormond. A shaft is down 50 feet on a lode showing tin freely.

There is a number of claims in the locality held for speculative purposes by persons who do not intend to work them.

THE WESTERN FALL.

A little over 4 miles from Gainer's Poolamacca Hotel, which is 13 miles from Euriowie and 35 from Broken Hill, are the Western Fall Claims, which at one time attracted a great deal of attention, but there is no work going on there at present. Considerable prospecting has been done, but the results do not appear to have been such as to bring about that active development now being witnessed in other portions of the field.

THE WAUKAROO PADDOCK.

The history of this portion of the field, which is employing about 100 men at present, has been already recited, and it will be here sufficient to indicate the progress attained with some of the principal claims. It may, however, be said in passing that, while the Waukaroo field has been severely criticised, there are some really good claims in it, although it is too early in the day to speak of their precise value. In November last the mining reporter of the *Silver Age*, who is respected in the district as a reliable expert, wrote:—"That there are as many really good tin claims in the Waukaroo Paddock as in the Euriowie portion of the field I give personal testimony and stake my professional reputation. All men practically acquainted with tin-mining concur in stating that a yield of from 1 to 1½ per cent. of fair quality of oxide of tin will pay all charges of getting and dressing, anything beyond that being profit. Of claims producing ore of a class much higher than this there are abundant on these fields."

There has been some talk of erecting public crushing machinery on the field to the north-east of the Proprietary Company's claim, a suitable site having been selected as regards an adequate water supply. Such an addition would give a great impetus to the development of the claims in the paddock, and there are sufficient, one would imagine, to keep a large concentrator well employed. Even now work is suspended on some claims until ore-dressing machinery is available.

With scarcely an exception the claims are in the Syndicate stage, which frequently means a limited capital for working. It is to the credit of the Broken Hill people that they have supplied most of the money expended upon this portion of the field. Under these circumstances there is no fair opportunity for the merits of the ground to be proved; and until by some means the confidence of the speculative public, which was shaken (whether justifiably so or not is a question) by the report of the Government Geologist in October last, is restored this portion of the tinfield will be kept back. The capital which can only be supplied by public Companies is needed for its development. The Government Geologist while intending to be cautious evidently did not contemplate that his report would have the effect of stopping legitimate work, for in his concluding paragraph he says:—"The slate formation of the district is traversed by numerous similar granite dykes. As

the lodes are numerous, there can be no doubt that considerable quantities of tin ore will, from time to time, be raised in working the bunchy portions of them. Timber, for mining purposes, and surface water are scarce; but a fair supply of the latter may be obtained by sinking wells in the valleys, or by making large tanks for conserving the rainfall."

Mount Lake is the northernmost portion of the Waukaroo field, and there (says Mr. Wilkinson) occurs a dyke mass of coarse-grained granite, suddenly widening out in one place to 100 feet with very small tin crystals appearing here and there in it. A branch vein up to 6 feet thick, but pinching out in places, extends W. 30° S. from it 4 chains, and shows coarse crystals of tin ore in patches. "Within 12 chains to the east are four other granite dykes with quartz reefs from 1 foot to 10 feet thick; they strike north-north-west, and have not yet been opened. Some small deposits of stream tin are likely to be found in the alluvial flats between these hills, together with good soakage water. Similar tin-bearing granite dykes occur to the south in Kali's claim, and also beyond in the Mount Lake South block, where there is one showing coarse tin in patches, from which 50 per cent. ore might be picked; but the general average of the lode would not, I think, yield 4 per cent. ore. It strikes north 30° E for about 8 chains, and varies in width up to 15 feet. But to the south it takes a more southerly course for about 200 yards, thinning out in places. There are other smaller lodes near on either side, and another 8 chains east is very felspathic, varying in width up to 20 feet for about 130 yards, with small crystals of tin in patches. These lodes have only been opened 3 feet from the surface."

The Mount Lake claim, comprising 200 acres, is the most northern, being a mile above the Dalcoath. There was a lot of tin showing on the surface, and a great deal of prospecting has been done, there being six lodes, one a true fissure lode, 10 feet wide, showing coarse tin. A vertical shaft has been sunk to a depth of 20 feet, with encouraging results. There are two other shafts—No. 3, which is sunk 35 feet, giving a noticeable improvement in ore as it goes down. The property is favourably situated for obtaining a large water supply.

The Mount Lake Victory is a small block of 17½ acres, wedged in between the Mount Lake Junction, Central, and

Consolidated. It has a good show of surface tin.

A vertical shaft has been started in the Mount Lake South on a very large formation, which can be traced for three blocks. It is 10 feet wide, and stands 6 feet out of the ground.

To the east of Mount Lake south is the Excelsior, consisting of three 40-acre blocks. There are three parallel lodes, about 15 feet apart, which may make into one as they go down. Sufficient prospecting has been done to furnish a good show of tin in strong lodes.

East and north-east of the Excelsior is the Dalcoath, a claim comprising five 40-acre blocks. On Blocks 18 and 19, which are to the north of the Waukaroo Extended, and Block 13, which is to the east of that claim, a good deal of prospecting has been done. Mr. Wilkinson reported that on the Dalcoath there was a lode, consisting chiefly of quartz, and varying in thickness up to 8 feet, which contained tin ore in patches that separately would yield 20 per cent. ore. It strikes N. 5° W., traversing altered slates. Twenty yards from it on the east side is another lode of lenticular bunches of quartz up to 2 feet thick, containing tin ore. One shaft has been sunk 50 feet and another is going down 100 feet. There are other lodes to those mentioned in the ground, and the prospects generally justify an expenditure on development. There are 192 shares in the Syndicate, £26 being paid or capitalized, and a sale at £60 was reported on February 14.

The Waukaroo Blocks claim, comprising 60 acres, is sandwiched between a northern and a southern block of the Dalcoath, having also two other of the Dalcoath blocks to the westward. A good deal of work has been done. There is a large lode on the northern block showing tin freely. Some of the best samples on the field have been seen in this claim. The capital is 96 £50-shares, paid or capitalized to £50.

Between the Excelsior and the southern portion of the Dalcoath is the Waukaroo Extended, comprising 98½ acres. A shaft is down on a talcose schist formation 4 feet wide, showing tin.

The Waukaroo North is to the east of the Extended and south of the Dalcoath, with the Consols and Consolidated on the eastern boundary. It consists of two 40-acre blocks. Three lodes have been opened, and a shaft is being sunk upon a good formation 4 feet wide. The capital is 100 shares, on which £5 is paid or

capitalized, and a sale has been made at £20.

The Waukaroo Consolidated have three blocks, making over 113 acres, to the east of the Dalcoath, Waukaroo North, and Consols. Costeening has proved it to possess strong lodes, with tin in places. Mr. Wilkinson found a similar slate reef to one in the Proprietary Company's ground with granite veins of irregular width up to 16 inches, opened to a depth of 6 feet, containing coarse tin in patches. Twenty feet from it on the east side is a large quartz reef 3 ft. 6 in. wide and 70 feet long. Further east 100 feet another granite dyke 3 feet thick would yield tin ore probably up to 2 per cent., but it could be sorted to give a higher yield. The Consolidated is being worked. A shaft has been put down on the underlay 50 feet and it is to be sunk another 20 feet. The lode for the distance yet traversed is said to show fair oxides of tin.

The Waukaroo Consols, a 40-acre block, receives the Proprietary lodes from the south. A shaft has been sunk on the hill on a strong formation. There are 960 shares, and a sale was reported on September 10 last at £10.

The Waukaroo Proprietary Company have six 40-acre blocks, three deep, upon which a great deal of prospecting has been done. Eight distinct outcrops have been seen and five lodes opened up, all running north and south. The Government Geologist reported as to the claims in October last:—"Several openings have been made along a singular outcrop of talcose schist for about 15 chains. It contains a little tin in small crystals, and strikes N 5° W, with lenticular quartz veins 2 feet wide. Along its southern extension lenticular veins of granite as well as of quartz up to 3 feet thick occur. The patches of tin ore in the granite if taken out separately, would yield from 20 to 30 per cent. of tin oxide." There is a shaft down 80 feet, and the men are driving to cut the lode. Another shaft, the central, is down 62 feet, and there is about 25 tons of ore on the top. The western shaft is down 30 feet, and there is 8 tons of ore at grass. It is believed that the small lodes are portions of a main lode which will be found by sinking. Some excellent tin has been obtained from the claim, and Mr. Finlay, the Manager, who has had tin experience in New England and Queensland, speaks confidently of its merits. A ninety-sixth interest in the Company has been sold as high as

between £500 and £600. There are 96 shares, and a sale was made on February 14 at £122.

The Waukaroo Bischoff is an adjoining claim to the Proprietary on the south. It consists of 80 acres. A shaft is being sunk on a widening lode through unsettled country.

The Waukaroo South, comprising an 80 and 40 acre block to the south of the Bischoff, has, says Mr. Wilkinson, three lenticular granite dykes striking N. 5° W., and up to 4 feet thick, show coarse crystals of tin in patches. The whole, if taken out, would yield about 2 per cent. of ore. There are 96 shares in the Syndicate, and a sale was reported on September 28 last at £50.

A similar tin-bearing lode, adds the same authority, 4 feet thick, and striking N. 10° W. traverses the mica slates in the Western Star Company's mine. This claim includes 5 40-acre blocks.

Immediately north of this are the Granite Springs lodes. Within a diameter of 3 chains (states the Government Geologist) are three lenticular granite dykes up to 4 feet thick, containing a little tin ore, about 2 per cent. The strike is E.N.E., N.E., and N. 5° E. (same as strata). Three chains north are talcose slates like those in the Proprietary Mine, with quartz blows and fluor spar. Five chains further north is a lenticular granite lode 5 feet wide showing a little tin, and near it a quartz reef containing wolfram. Three other small lodes have also been prospected near the surface. They contain small quantities of tin ore in patches. A little stream tin was found near the head of a gully draining from them. Seven shafts are now sunk on the claim, which consists of four 40-acre blocks. Active work is going on. There are 100 £50-shares, £50 being paid or capitalized, and a sale was reported on February 18 at £40.

PINE PADDOCK.

Pine Paddock is the lower portion of the Waukaroo field. It comprises several promising claims, but they are "hanging fire" for want of capital.

The Botallie comprises two blocks, a portion of one only being inside the fence. A shaft is sunk on a lode formation of 30 feet.

The Pine Paddock Proprietary Company have 100 acres south of the Botallie, but there is nothing doing there at present. A shaft has been sunk on a junction of two lodes. The Government Geologist

found several tin-bearing dykes of large-grained felspathic granite traversing slate varying in thickness up to 10 feet, striking N. 5° W. to N. 20° E. He added—“Some are like short, oblong, or boat-shaped dykes; the tin ore with tourmaline occurs in patches, and would have to be sorted to yield 10 or 15 per cent. of ore.”

The adjoining claim to the south, the Bendigo, is also idle. Shafts have been sunk 35 and 17 feet deep. There are three lodes. Sufficient work has been done to give the property a promising appearance.

To the south-west of the Bendigo are the Albion Claims. The original or Albion proper was pegged out by Mr. Campbell, as previously related. “On the south side of Yancowinna Creek, in portion 95, is (says Mr Wilkinson) the Albion lode, of coarse crystalline granite in altered slate formation, dipping W. 25° N. at 80°. It would probably yield 12 to 15 per cent. of tin. A shaft has been sunk 22 feet deep. A hundred feet further south a cutting 4 feet deep has been made, showing the lode 7 feet

wide, with a small patch of tin ore in centre. Near the south-west corner of portion 95 is a lode 25 feet wide, showing a little tin and tourmaline. Within 10 chains east are a few other lodes. One from 1 foot to 2 feet thick, containing some tin and brown garnets, has been opened 3 feet deep. It strikes north 40° east in chloritic slate.” Further sinking has shown that the lodes improve in depth, and other openings have been made with promising results. Though the claim has not advanced beyond the prospecting stage, several tons of ore has been shipped away. There are ninety-six shares in the Syndicate, and a sale was reported on February 16 at £95.

The West Albion Claim is an 80-acre block to the west, as the name implies, of the Albion. It is being worked, and a good show obtained. The North Albion, also an 80-acre block, is being prospected. The Albion South has been idle. There are ninety six shares in the Syndicate, and a sale was made on February 18 at £90. The Union, which is still further to the south, is being tried with favourable indications.

C. PROUD,

SHAREBROKER, &c.,


2, Pirie Street, Adelaide.

TELEPHONE No. 322.

MEMBER OF THE STOCK EXCHANGE OF ADELAIDE.

In hourly Telegraphic Communication with all the
Share Markets of Australia.

ALL ORDERS RECEIVE PROMPT ATTENTION.

 Sales Published in the Daily Press.

PENINSULAR AND ORIENTAL STEAM NAVIGATION CO.

Under Royal Mail contract the steamers of this Company will be dispatched for London, calling at King George's Sound, Colombo, Aden, Brindisi, Malta, and Gibraltar, as follows :—

VICTORIA	...	...	6,268 Tons	7,000 h.p.	12th March
CHUSAN	...	...	4,496 "	4,200 "	26th "
PARRAMATTA	...	...	4,771 "	4,500 "	9th April
CARTHAGE	...	...	5,013 "	5,000 "	23rd "
OCEANIA	...	...	6,600 "	7,000 "	7th May
BRITANNIA	...	...	6,257 "	7,000 "	21st "
ROSETTA	...	...	3,525 "	3,500 "	4th June

Passengers booked to above Ports ; also to India, China, and Japan.

Passage-money greatly reduced. Liberal concessions made to families. Return tickets at low rates. Passage-money from England can be paid at this end.

Passengers booked by Mr. CHARLES CHAPPLE, the Company's Agent, at Silvertown and Broken Hill.

ELDER, SMITH, & CO.,

Agents, Adelaide.

NOBEL'S EXPLOSIVES CO., LIMITED, GLASGOW.

Nobel's Dynamite and Treble Force Detonators.

Nobel's Gelatine Dynamite and Gelatine Detonators

Nobel's Blasting Gelatine and Sextuple Detonators

Are to be had from all Ironmongers and Storekeepers.

Gelatine Dynamite used with Gelatine Detonators, and properly fired, is regarded by numerous scientific mining and engineering authorities as one of the safest and most perfect of the powerful explosives introduced of late years. It is entirely free from noxious fumes.

ELDER, SMITH, & CO.,

Adelaide Agents.

The Peninsular and Oriental Steam Navigation Company.

[Extract from News Columns of the *London Times*, January 18, 1888.]

“THERE is no greater proof of the vitality of this veteran Company than the vigour with which it appears to be entering upon the present year, from which its new mail contracts to India, China, and Australia date. These contracts commence in February, and the occasion has been taken advantage of to remodel all the services. The public nowadays demand greater facilities and greater comforts for travel than contented them formerly, and this demand has been met by vast improvements in all directions. The mail services the Government has decided shall still be carried on by way of Brindisi; and, the route through the Suez Canal being selected, there will no longer be any transhipments or railway transit across Egypt, which formerly were so annoying to travellers, neither will there be a recurrence of the vexatious delays and inconveniences to which they were at times subjected by the action of the sanitary authorities in regard to the imposition of quarantine in Egypt. Every Monday morning the letters from the East will be delivered as heretofore, and letters for the East will be despatched, as at present, on every Friday evening. But the conveyance of the mails to India, China, Australia, and the British possessions in the East is only a portion of the operations carried by the P. and O. Company; and the directors have not been content to confine their services to communications with the East from London or Brindisi, but have also notified extensions from London to Marseilles and Naples and from Marseilles, Naples, and Brindisi to all ports included in their Eastern system. They are also opening a service from Brindisi to Malta, which will bring this station within 87 hours of London.

At the present time the P. and O. Company owns 53 steamers, with an aggregate registered tonnage of 204,183 tons and 198,500 horsepower, built at a cost of some £6,000,000. Their largest steamers are of 6,500 tons register, and the smallest 2,000 tons. In the course of the coming year no fewer than 200 of their steamers of an aggregate tonnage of nearly 1,000,000 tons, will enter and leave the port of London alone. The steamers traverse 2,500,000 miles in the course of a year. The Company gives employment to 800 officers (commanders, officers, engineers, surgeons, &c.) of the mercantile marine holding certificates from the Board of Trade, and a large proportion have Her Majesty's commission in the Royal Naval Reserve. It has also in its service an army of nearly 15,000 people afloat and ashore. Great as its resources and operations are, the Company has many competitors, and although its main operations are directed towards the carriage of mails and passengers, the competition of the cheap class of cargo steamers with limited passenger accommodation which have lately been built, has forced the Company to extend its branches, and of late it has established a network of encies throughout the country.”

ORIENT LINE OF ROYAL MAIL STEAMERS

The following Steamers belonging to the **ORIENT AND PACIFIC STEAM NAVIGATION COMPANIES**, under Mail Contract with the Imperial, New South Wales, Victorian, and South Australian Governments, are dispatched **FORTNIGHTLY** to **LONDON** from **SYDNEY**, **MELBOURNE**, and **ADELAIDE**, via **ALBANY**, **SUEZ CANAL**, **NAPLES**, **GIBRALTAR**, and **PLYMOUTH**.

			Tonnage.	H.P. Effective.
AUSTRAL	...	...	5,588	7,000
CHIMBORAZO	...	...	3,847	3,000
CUZCO	...	...	3,845	4,000
GARONNE	...	...	3,876	3,000
IBERIA	...	...	4,702	4,200
LIGURIA	...	...	4,666	4,200
LUSITANIA	...	...	3,825	4,000
ORMUZ	...	...	6,116	8,500
ORIENT	...	...	5,286	6,000
ORIZABA	...	...	6,184	7,000
OROYA	...	...	6,184	7,000

These Steamships are noted for their quick passages, the "Ormuz" having made the fastest passage on record outwards, and the "Oroya" homewards.

They are specially constructed and rigged for long ocean voyages, and are renowned for the comforts and the conveniences they offer to Passengers.

The First and Second Saloon Cabins are provided with every requisite, and the Tables in both Saloons are supplied with Fresh Meat, Fresh Vegetables, Ice, and other delicacies.

Saloon Passengers can break their journey

Entire cabins reserved on most liberal terms.

The following are the rates of passage money from Adelaide, Melbourne, and Sydney to London :—

First Saloon, £55, £63, and £70 ; return £105 and £115

Second Saloon, £30, and £37 ; return, £54 and £65

Third Class and Steerage, £16 (enclosed berths).

Special facilities are afforded for bringing out friends and relatives by prepayment of passage money in the Colonies, thus saving cost of exchange.

Full particulars on application at any of the Company's Agents :—

LONDON : { **F. GREEN & CO.,** and { **Managers, Fenchurch**
ANDERSON, ANDERSON, & CO. } **Avenue, E.C.**

SYDNEY : **G. SKELTON YUILL**, General Manager in Australia.

MELBOURNE : **GIBBS, BRIGHT, & CO.,** Agents.

ADELAIDE : **THOS. E. PUGH**, Agent.

March, 1888.

NORD-DEUTSCHER LLOYD

REGULAR MONTHLY LINE of FAST PASSENGER STEAMERS to ANTWERP and BREMEN, via COLOMBO, ADEN, and SUEZ, connecting with Mail and Passenger Steamer from Alexandria to Brindisi.

Under Mail Contract with the Imperial German Government,

**CALLING AT GENOA AND SOUTHAMPTON TO
LAND AND EMBARK PASSENGERS.**

Leaving Sydney, Melbourne, and Adelaide regularly every Four Weeks.

PASSAGES FROM ADELAIDE TO BREMEN, £14 TO £60.

PASSENGER ACCOMMODATION UNSURPASSED.

GREAT REDUCTIONS for Return Passages, available for Six, Nine, or Twelve Months.

PASSENGERS and CARGO BOOKED through to London and principal European Ports.

PASSAGES from Europe can be prepaid in the Colonies.

For Freight, Passage, and all other particulars apply to the Agents for South Australia.

H. MUECKE & CO.,

Adelaide and Port Adelaide.

ADELAIDE SALES.

Wool,
Stock,
Skins, Hides, Bark, &c.,
Wheat and Flour,
Stations and Land.

WOOL AND OTHER PRODUCE SOLD OR SHIPPED.

ELDER'S WOOL AND PRODUCE COMPANY, LIMITED, ADELAIDE, PORT ADELAIDE, BURRA, BROKEN HILL, & LONDON.

CAPITAL - - £200,000.

WOOL SOLD at Port Adelaide or SHIPPED to London on
Most Favourable Terms.

STOCK SALES.—WEEKLY SALES held of Fat and Store Stock, including Cattle, Sheep, Pigs, Calves, &c., in ADELAIDE; and MONTHLY SALES at the BURRA. WEEKLY SALES of Fat Stock at BROKEN HILL. Further Sales elsewhere as arranged.

Every attention given to Consignments of Stock whilst on the road, and in drafting prior to Sale.

Trucks engaged and careful Drivers sent to meet Stock when required.

Full advices given to all Customers regarding the Market, and Drivers instructed and financed for.

SHEEPSKINS, HIDES, KANGAROO-SKINS, RABBIT-SKINS, OPOSSUM-SKINS, TALLOW, and OTHER PRODUCE sold regularly at our Adelaide Warehouses.

WHEAT, FLOUR, BARK, &c., Sold or Shipped.

LAND and STATION SALES conducted.

ACCOUNT SALES promptly rendered, with Cash Settlements.

Liberal Cash Advances Made.

ELDER'S WOOL AND PRODUCE COMPANY, LIMITED
OFFICES AND TOWN WAREHOUSES, CURRIE STREET,
ADELAIDE.
WOOL WAREHOUSES, PORT ADELAIDE.



HORN & CO.,

Sharebrokers,

COMSTOCK CHAMBERS,

King William St.,

ADELAIDE.



H. KARLBAUM & CO.,

SHAREBROKERS

AND

MINING AGENTS,

ROYAL EXCHANGE,

KING WILLIAM STREET.

W. MITCHELL,

STOCK AND SHARE BROKER,

&c.,

N^o 7, GRENFELL ST., ADELAIDE

(Late No. 15, Exchange).



All kinds of Shares Bought and Sold
for Cash.

~~~~~  
TELEGRAMS PROMPTLY ANSWERED.

~~~~~  
RELIABLE QUOTATIONS.
~~~~~

*Address—*

## W. MITCHELL'S EXCHANGE,

*No. 7, Grenfell Street,*

## ADELAIDE.

# **GEO. T. LANE,**

## **Share Broker and Licensed Land Broker,**

### **ACCOUNTANT AND FINANCIAL AGENT.**

---

**OFFICES :**

**Widows' Fund Buildings, Grenfell Street.**

**ADELAIDE.**

TELEPHONE No. 304.

---

**Money Lent on Mortgage** at Current Rates.

**Properties** Bought, Sold, Let, and Leased. (Chamber of Commerce Tariff.)

**Valuations** made in City and Country by Special Arrangement.

**All Real Property Act Documents** Promptly Prepared. (Licensed Land Broker by Examination.)

**Businesses** Bought, Sold, Transferred, and Reported on.

**Arbitrator** in Partnership and Business Disputes.

**Agent for Trustees, Absentees, and Landed Proprietors.**

**Properties and Estates Managed** by Contract or on Commission.

**Rents, Interest, Dividends, Accounts, &c.,** Collected. Prompt Monthly or other Time Settlements to suit Clients.

**Arrangements** made between Debtors and Creditors by Private Deed, or under Part XI. of the Insolvent Act, 1886.

**Government** and other **Land Sales** Attended.

**Accountant and Auditor.**

**Commission Business** of every Description relating to Land, Shares, or Merchandise transacted promptly. Quotations given.

---

Secretary to the Lady Bevy's Mining Company, Limited; The Lady Bevy's Extended Mining Company, Limited; The King's Bluff Gold Mining Company, Limited; The Wirralpa Silver Mining Company, Limited; The Adelaide and Hyde Park Tramway Company, Limited; The Wholesale Grocers' Association, &c.

# CHARLES CHEWINGS,

GRENFELL ST., ADELAIDE,

Stock and Station Agent,

**SHAREBROKER AND DEALER,**

Land, Mining, and Commission Agent.

Member of the Stock Exchange of South Australia.

MONEY ADVANCED ON BROKEN HILL SHARES.

Begs to announce that he is prepared to undertake Commissions for either the purchase or disposal of all kinds of Shares, and also the investment in Stocks of any sums remitted to him at best possible advantage. Quotations and information promptly supplied. Clients when sending instructions are requested to state the prices they are prepared to buy, or sell at, or "at best," as by this means the fluctuations in the market may be taken advantage of. Orders will be considered in force until cancelled. Clients may depend upon having their interests carefully watched, and their Stocks disposed of to best advantage. We act as Brokers on Commission, and Scrip delivered on receipt of cash.

---

# CHARLES CHEWINGS,

Camel Carrier's Office,

GRENFELL STREET, ADELAIDE.

---

'CAMELS' Bought, Sold, Exchanged, or Let on Hire.

'LOADING' taken to any part of Australia with care and expedition.

'CARAVANS,' Exploratory, Survey, and Prospecting, fitted out complete.

'CONTRACTS' for Carting H.M.G. Stores, Station Supplies, and Wool made a specialty.



# JAMES MARTIN & CO., LIMITED,

## Phoenix Foundry,

### GAWLER, SOUTH AUSTRALIA,

### AND AT GLADSTONE,

### Engineers, Ironfounders, Agricultural Machinists,

### BOILER MAKERS,

### MANUFACTURERS OF MILLING, MINING, AND PUMPING MACHINERY,

*Contractors to S. A. Government for Locomotives and  
General Railway Plant, Bridgework, &c., &c.*



ESTIMATES GIVEN FOR ALL KINDS OF MINING AND PUMPING  
MACHINERY, CONCENTRATING PLANT AND CRUSHING MILLS.

~~~~~  
MULTITUBULAR AND EVERY OTHER CLASS OF BOILERS
MADE OF STEEL PLATE WITH ALL LATEST
IMPROVEMENTS IN FITTINGS.
~~~~~

Samples of work can be seen at the Australian Smelting and Refining  
Company's Work at Dry Creek, S.A. The Furnaces and Machinery were  
manufactured and erected by J. Martin & Co., Limited.

~~~~~  
Letters or Telegrams addressed to Gawler or Gladstone, S.A.,
will receive prompt attention.

FRANCIS H. CLARK & CO.,

BLYTH STREET, ADELAIDE,

Engineers and Machinery Merchants.

Agents { **RICHARD GARRETT & SONS,**
for { **TANGYES LIMITED,**

Steam Engines—Portable, Horizontal, and Vertical, Simple and Compound. Winding Engines.

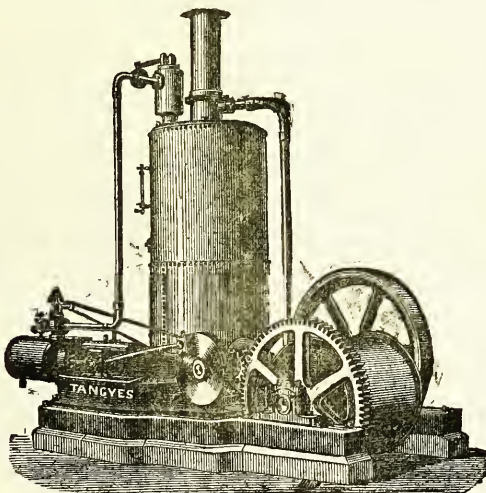
BOILERS
and
Mountings.

STEAM
PUMPS:

Special,
Centrifugal
Deep Well,
&c.

CHERRY'S
HOISTS.

Engineers'
Tools.



HYDRAULIC
JACKS,

Steam Valves,

Lubricators.

Weston Blocks,

Crab Winches,

Galloway
Tubes,

&c., &c., &c.

RICHARD GARRETT & SONS'

STEAM THRESHING MACHINES, STEEL BOILERS with Corrugated
Fire Boxes, **SEED DRILLS, &c., &c.**

DAVIS & PRIMROSE'S STEAM HAMMERS

CRADOCK & CO.'S STEEL WIRE ROPE, LANG'S PATENT
Warranted to do Fifty per cent. more work than any other make.

HOGARTH & WARREN'S WOOL SCOURERS

WORMALD & CO.'S HEAT-PROOF COMPOSITION

TURNBULL'S PATENT DEAD-WEIGHT SAFETY VALVES

Boring Tools, Patent Metallic Packing, Millwork, Electric Light work, &c., &c.

FRANCIS H. CLARK & CO.

REPAIRS PROMPTLY ATTENDED TO.

WHOLESALE IRONMONGERS.

AGENTS FOR

RUSTON, PROCTOR, & CO.—

STEAM ENGINES.—Vertical, Horizontal, Portable,
Semi-fixed.

ELIZA TINSLEY.—

LATHES, Punching Machines, Drills, &c. Shafting,
Couplings, Pulleys, Plummer Blocks, &c.

J. COLTON & CO.

STEEL.—Drill and Tool.

Powder (Blasting), Dynamite, Detonators, Fuse,

IRON.—Bar, Rod, Sheet, Galvanized.

FURNISHING IRONMONGERY.—Beds, Bedding, Spring
Mattresses, &c.

MAKERS of Tents, Hammocks,

Tarpaulins, Canvas Bags,

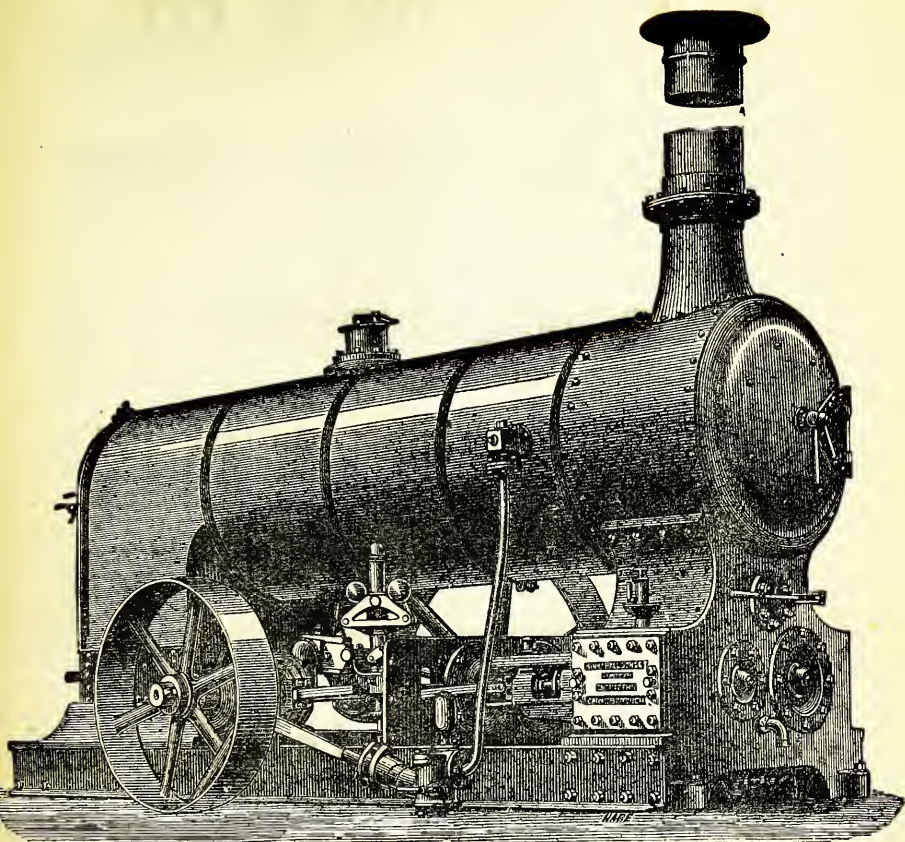
The Celebrated “Aqua” Filters,

All kinds of Saddles,

Harness, and Strapping.

WAREHOUSE AND HEAD OFFICE :

CURRIE ST., ADELAIDE.



Marshall's Compound Undertype Engines	}	First Award Adelaide Jubilee Exhibition.	
Marshall's Traction Engines			
Marshall's Horizontal Stationary Engines			
Marshall's Vertical (with or without boiler) Engines			
Marshall's Portable (with one or two Cylinders) Engines			
Marshall's Improved Saw Benches		First Award Jubilee Exhibition.	
Kirkstall Forge Rolled Shifting and Special Iron.			
Halladay Windmills from 10 to 22 feet and from one to five H.P.	}	Do.	Do.
Hett's Centrifugal Pumps, 4 to 12 in. piping, Bends, Footvalves, &c., for do.		Do.	Do.
Davis Sewing Machines		Do.	Do.
Hall's Blasting and Sporting Powders		Do.	Do.
Rhenish Dynamite			
Burgon & Balls and M. M. Mining Steel			

MINING MATERIAL IN EVERY VARIETY.

Station Requisites, Pumping, Irrigating, and Agricultural Machinery.

MCLEAN BROS. & RIGG, LIMITED,
Adelaide, Melbourne, Sydney, London, New York.

G. E. FULTON & CO.,

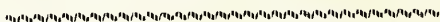
Consulting and Mechanical Engineers,

AND

IRONFOUNDERS,

HEAD OFFICE: PEEL STREET, ADELAIDE, S.A.

FOUNDRY AND WORKSHOPS: KILKENNY, S.A.



Notice to Directors & Managers of Mining Companies

The special facilities we have at our large Establishment at Kilkenny enables us to guarantee the turning out of all classes of Engineering Work with economy and expedition. We are also prepared to confer and to receive particulars on the subject of Plant required, and to get up Working Drawings and Specifications in accordance therewith, and to forward estimates on the shortest notice.

Skilled and reliable workmen sent to any part of the Colony to superintend erection of same.

Any communications addressed to us at Peel Street will receive prompt attention.

FORWOOD, DOWN, & CO.,

ENGINEERS, FOUNDERS,

Boilermakers, Millwrights, & General Smiths.

MAKERS OF

Engines, Boilers, Rack Woolpresses, Whim Bows, Whip Wheels, Steel Kibbles, Water Valves, Boring Tools, Pumps, Winepresses, Girders, Columns, Bakers' Ovenwork, and Mining Machinery.

SPECIAL LINE—Small Girder Type Horizontal Engines with Vertical Boilers and Winding Gear, complete.

SOLE AGENTS IN SOUTH AUSTRALIA FOR D. NEW & COY.
MACHINE TOOL MAKERS, LONDON.

IN STOCK AT HINDLEY STREET—Engines, Boilers, Lathes, Drilling, Screwing, Planing, and Shaping Machines, Pumps, Kibbles, &c., &c.

Address—HINDLEY STREET WEST, ADELAIDE.

CHARLES HART & CO.,

ADELAIDE AND PORT ADELAIDE.

Merchants & Importers.

Indents executed on the most favourable terms. Advances made against Wool, Wheat, and Ores, consigned to care of our London or Continental Agents.

McCULLOCH CARRYING COMPANY, LIMITED

GENERAL CARRIERS,

Custom House and Shipping Agents.

HEAD OFFICE :

COLLINS STREET, MELBOURNE.

BRANCH OFFICES :

Currie Street, Adelaide.

Lipson Street, Port Adelaide.

Broken Hill and Silverton,

And in all the principal Towns in the Australian Colonies.

**GOODS AND FURNITURE TAKEN AT THROUGH RATES
TO ALL PARTS.**

All Customs Work attended to. Entries Passed; Duty Paid,
and Drawback and Bond Certificates Completed.

*Vans meet Trains at Adelaide and Broken Hill Stations
for the Conveyance of Passengers, Luggage, &c.*

W. C. YOUNG,

Mine and Spirit Merchant,

GENERAL STOREKEEPER,

BURKE STREET,

SILVERTON.



A LARGE AND WELL-ASSORTED STOCK OF

Drapery.

Grocery.

Crockery

Clothing.

Ironmongery.

and

Boots and Shoes.

Tinware.

Furniture.

AND ALL

MINING REQUISITES.



WHOLESALE AND RETAIL.

A. E. & F. TOLLEY,

WINE AND SPIRIT

AND

General Merchants,

CURRIE STREET,

ADELAIDE, S.A.

TOLLEY & Co., FREMANTLE, W.A.
 TOLLEY & Co., LIMITED, SOUTH CASTLE ST., LIVERPOOL.
 TOLLEY FRERES, COGNAC.

HAVE ON SALE

- Bass & Co.'s Ale, pints and quarts*
- E. & J. Burke's Light Sparkling Ales, pints and quarts*
- E. & J. Burke's Guinness's Stout, pints and quarts*
- E. & J. Burke's *** Star Choice Old Irish Whisky*
- E. & J. Burke's Vice-Regal Scotch Whisky (the best matured Whisky in the world)*
- Bernard & Co.'s Celebrated Encore Whisky*
- Tolley Freres' Cognac (obtained First Order of Merit Adelaide Exhibition 1887-1888)*
- Tolley Bros.' Old-matured Jamaica Rum*
- Tolley Bros.' West Indian Rum*
- G. H. Mumm & Co.'s Champagne, pints and quarts*
- Heidsieck & Co.'s "Dry Monopole," pints and quarts*
- Moet & Chandon, pints and quarts*
- Wilson & Co.'s Sherries, bulk and case*
- W. C. Tait & Co.'s Ports, bulk and case*
- St. Raphael Wine (universally recommended by the medical profession for invalids)*
- Tea, in boxes and half-chests*
- Coffee, ground, 7-lb tins*
- Mikado choice Habana Cigars*
- Manilla and Swiss Cigars*
- Tobaccos, Glassware*

ASK FOR
"PAOU-
CHUNG"
TEA

USE ONLY
LION
BAKING
POWDER

DR. FOSTER'S MIRACULOUS MIXTURE

Cures Croup, Bronchitis, Sore Throats.

TESTIMONIALS.

Dr. Foster's Miraculous Mixture I have used in my family as a preventative and cure for croup, and never found it fail.

HARRY BICKFORD.

T. E. FISHER, Mallala.

The bottle of Foster's Miraculous Mixture I had from you has certainly worked a miraculous cure on three of my family.

J. J. MITCHELL, Long Plain.

DR. FOSTER'S MIRACULOUS PILLS

These Pills are specially prepared to relieve the sufferings incidental to women. These Pills never fail to relieve.

DR. FOSTER'S MIRACULOUS LOTION

For the Cure of Wounds, Sores, Boils, Abscesses, Eruptions on the Skin, Pimples, Scrofulous Discharges, Piles, &c., &c.

TESTIMONIAL.

I suffered for months with a swollen leg which caused me intense pain. After using many liniments, &c., to no effect, I was induced to give Foster's Miraculous Lotion a trial. The result was wonderful. Two bottles cured me. I can confidently recommend it to the public.

MRS. J. WOODS, Templars.

DR. FOSTER'S MIRACULOUS WHITE ROSE EYE LOTION

TESTIMONIALS.

Some time since my daughter and her children were afflicted with bad eyes, which Dr. Foster's White Rose Eye Lotion (which is painless to use) cured by applying it according to the directions, and I can safely recommend it as a speedy cure.

W. HODGES, Adelaide Hotel, Adelaide.

Having used Dr. Foster's White Rose Eye Lotion and found it to be a splendid cure for inflammation, I have much pleasure in recommending it to the public.

R. BROWN, Prince Albert Hotel, Wright Street.

RETAIL-ALL CHEMISTS.

WHOLESALE AGENTS—

A. M. BICKFORD & SONS,
WHOLESALE DRUGGISTS,
CURRIE STREET.

PRINTING OF EVERY DESCRIPTION

EXECUTED AT THE

Register, Observer, and Journal

COMMERCIAL, GENERAL,

AND

FANCY PRINTING OFFICES

GRENFELL STREET, ADELAIDE.

Proprietors: W. K. THOMAS & CO.

Balance-sheets, Trade Reports, Invoices, Account Forms, Billheads, Credit Notes, Statements, Memorandum, Letter Headings, Circulars, Cartnotes, Order Books, Delivery Notes, Business Cards, &c.

Concert and Entertainment Programmes, Dance and Ball Programmes, Dinner Menus, Hotel Cartes, Invitation, At Home, and Visiting Cards, In Memoriam and Mourning Cards.

Posters, Placards, and Handbills, all sizes and in all colours.

Ornamental Printing in Gold, Silver, or Colours.

Corporation and District Council Work.

Law and Church Work, Institute Catalogues, &c.

Pamphlets, Companies' Articles of Association, Rules and Regulations of Building and other Societies, Auctioneers' Catalogues, &c., Printed on the Shortest Notice.

BOOKBINDING AND MACHINE-RULING.

PRINTING IN GERMAN.

The Extensive Plant of the Establishment includes Founts of German Type, and all descriptions of German Printing are undertaken.

W. K. THOMAS & CO.,

Grenfell Street, Adelaide.

FURNISH YOUR HOUSE AT HOOPER'S

ESTABLISHED 21 YEARS.



**Largest Stock in West
Adelaide**

COME AND INSPECT IT.

EVERY HOUSEHOLD REQUISITE KEPT.

ALSO, A

Very Large and Varied Stock of PERAMBULATORS

MADE A SPECIALTY OF.

2	Rooms	furnished for	£13 and £14 14s.
3	"	"	" £15 15s. and £17 10s.
3	"	"	" £19 10s. and upwards.
4	"	"	" £29 10s. and upwards.

IF IN THE COUNTRY

Write for Lists and full particulars will be forwarded. Letters arriving daily showing great satisfaction given by our value and packing.

HOOPER'S,

Hindley Street, corner Leigh Street. Adelaide.

SPECIAL TEA

A LUXURY

IN TINS CONTAINING

5 lbs.	...	...	Tin, 15s.
10 lbs.	...	...	" 28s.

This Tea is a Blend of the Finest Importations from India
and China.

CRAWFORD & CO.,

4, HINDLEY STREET, ADELAIDE.

UNITED SERVICE CLUB HOTEL,

KING WILLIAM STREET, ADELAIDE.

Opposite the New Exchange.

F. C. ALDRIDGE, Proprietor.

TELEPHONE No. 298.

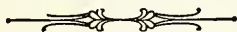
HALES BROTHERS,

Sharebrokers and Mining Agents,

(Members of Stock Exchange of S.A.)

3, MELVIN CHAMBERS, KING WILLIAM STREET, ADELAIDE

Immediately Opposite Royal Exchange.



OFFICES OF AND SECRETARIES TO:—

The Town and Country Building Society,

Rockwell Hope Silver Mining Company,

Telegraph Ruby Mining Company,

Hart Ranges Ruby Mining Company,

Capricorn Ruby Mining Company,

&c., &c., &c.

~~~~~  
**Telephone 276.**  
~~~~~

MINING, LAND, AND GENERAL AGENCY.

Letters and Telegrams promptly attended to.

~~~~~  
**PRACTICAL PERSONAL EXPERIENCE OF THE BARRIER.**  
~~~~~

Regular and Reliable Information from the Mines.

WARE'S JUBILEE LAGER. BOTTLED BEER.

"SEE THAT YOUR BEER IS FREE FROM CHEMICALS OR DISEASED GERMS."

Make your Brewer or Bottler guarantee the above ; if he does not then shun him.

We are prepared to Guarantee all our JUBILEE LAGER BEER, CRYSTAL ALE, and STOUT absolutely Pure and Free from all Adulterants.

A. W. & T. L. WARE.

Patronise only those who have the courage to make such an assertion.

WE DID NOT OBTAIN EIGHT ORDERS OF MERIT

FROM THE JURY AT THE ADELAIDE JUBILEE EXHIBITION FOR AN
IMPURE BEER.

READ THIS LETTER.

PROFESSOR RENNIE.

JULY 23, 1887.

Dear Sir—We are in receipt of your Classification-paper. We have about eight entries in Beers and Bottled Ales and Stout, D, No. 626. We want our exhibits judged on their merits. If we may offer a suggestion, we should like all these exhibits in this class analyzed.

We are, &c.,

A. W. & T. L. WARE.

The result of the Juries' Award was Eight Orders of Merit.

COMMENT IS NEEDLESS.


The JUBILEE LAGER is obtainable at all Hotels in the City and Suburbs, or from the Brewery.

No Order received at the Brewery for less than two and a-half dozen.

Our Pure Beers are Bottled under an entirely new process without the aid of any chemical.

A. W. & T. L. WARE,
TORRENSIDE BREWERY, HINDMARSH.

WARE'S JUBILEE LAGER.

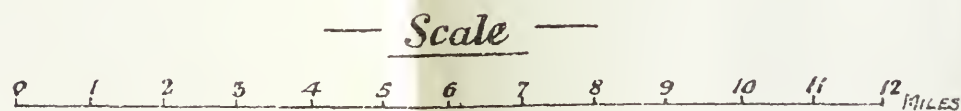
 These Ales and Stouts are obtainable from all Hotels in Broken Hill and Silverton.

MAP

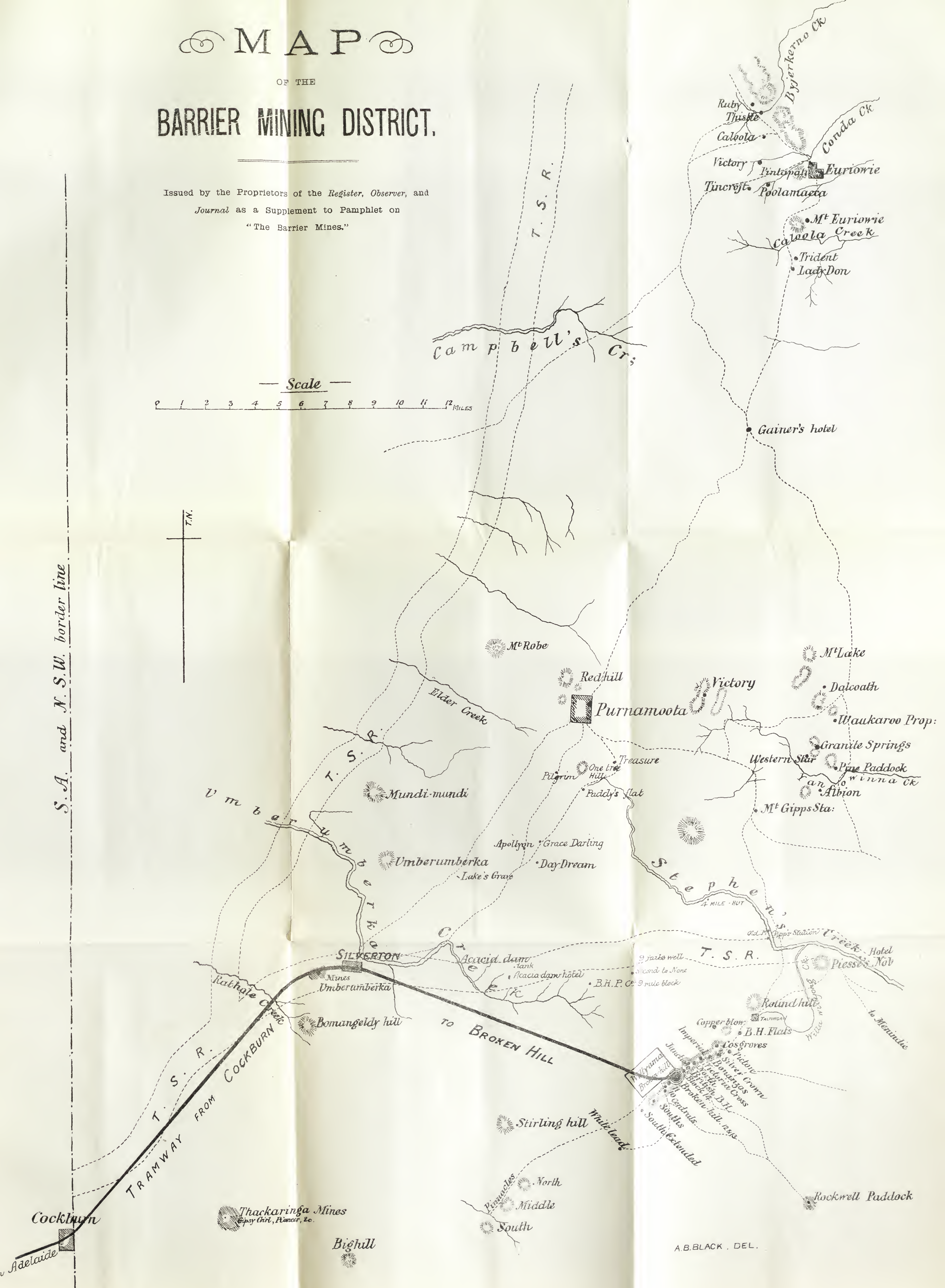
OF THE

BARRIER MINING DISTRICT.

Issued by the Proprietors of the Register, Observer, and
Journal as a Supplement to Pamphlet on
"The Barrier Mines."



S. A. and N. S. W. border line



REFERENCE—
FEDERAL BANK

TELEPHONE 406.

FRANK A. RUSSELL,

STOCKBROKER & MINING AGENT,

COMSTOCK CHAMBERS,

KING WILLIAM STREET,

ADELAIDE.

MEMBER OF THE STOCK EXCHANGE OF S.A.

TELEGRAMS PROMPTLY ATTENDED TO.

NESTLE'S CONDENSED SWISS MILK
Is the Best.

"Black Horse" Salt is Pure.
Purity is Health!

"PARAGON"
PACKET TEA
AND
COFFEE.



PARAGON PACKET TEA is a Mixture
of **PURE TEAS** blended after a deal of
labour and expense to suit the Palates
of everybody.

TRY the **PARAGON PACKET TEA** or
COFFEE, and you will have no other.



REMEMBER THE BRAND—

"PARAGON."

BERGER'S "MATCHLESS" RICE STARCH,
In Packets and 1lb. Fancy Boxes.

NESTLE'S MILK is prepared only in Switzerland,
and is made from **RICHEST CREAM.**

365

